

Southern Extension of Sandpit, Lot 2 Calinup Road, Gelorup, Shire of Capel

APH Contractors

**Report and recommendations
of the Environmental Protection Authority**

**Environmental Protection Authority
Perth, Western Australia
Bulletin 1194
August 2005**

Environmental Impact Assessment Process Timelines

Date	Progress stages	Time (weeks)
29 October 1999	Level of Assessment set (following any appeals upheld)	
24 November 2003	Proponent Document Released for Public Comment	209
19 January 2004	Public Comment Period Closed	8
22 February 2005	Final Proponent response to the issues raised	58
29 August 2005	EPA report to the Minister for the Environment	27

ISBN 0 7307 6834 1
 ISSN. 1030 - 0120
 Assessment No. 1301

Summary and recommendations

APH Contractors proposes to extend the existing sandpit on Lot 2 Calinup Road, Gelorup, approximately 12 km south of Bunbury. This report provides the Environmental Protection Authority's (EPA's) advice and recommendations to the Minister for the Environment on the environmental factors relevant to the proposal.

Section 44 of the *Environmental Protection Act 1986* requires the EPA to report to the Minister for the Environment on the environmental factors relevant to the proposal and on the conditions and procedures to which the proposal should be subject, if implemented. In addition, the EPA may make recommendations as it sees fit.

Relevant environmental factors

The EPA decided that the following environmental factors relevant to the proposal required detailed evaluation in the report:

- (a) Vegetation and Flora;
- (b) Fauna, and;
- (c) Rehabilitation.

Conclusion

The EPA has considered the proposal by APH Contractors to extend the existing sandpit on Lot 2 Calinup Road, Gelorup

The proposal area supports a vegetation complex, a landscape feature and an ecological linkage which are all regionally significant. The re-establishment of the existing vegetation complex on the site after sand excavation will be extremely difficult and the proponent has not been able to provide evidence that the rehabilitation proposed will be successful.

The EPA considers the proposal to extend the existing sandpit on Lot 2 Calinup Road, Gelorup as proposed is environmentally unacceptable as it cannot be managed to meet the EPA's objectives in relation to Vegetation and Flora, Fauna and Rehabilitation.

The EPA therefore concludes that the proposal should not be implemented.

Recommendations

The EPA submits the following recommendations to the Minister for the Environment:

1. That the Minister considers the report on the relevant environmental factors of Vegetation and Flora, Fauna and Rehabilitation as set out in Section 3.
2. That the Minister notes that the EPA has concluded that the proposal cannot meet the EPA's environmental objectives for Vegetation and Flora, Fauna and Rehabilitation.
3. That the Minister notes that the EPA has not included in this Bulletin "conditions and procedures to which the proposal should be subject, if implemented" because the EPA holds the view that the proposal should not be implemented.
4. That the Minister not issue a statement that the proposal may be implemented.

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1. Introduction and background

This report provides the advice and recommendations of the Environmental Protection Authority (EPA) to the Minister for the Environment on the environmental factors relevant to the proposal by APH Contractors to extend the existing sandpit on Lot 2 Calinup Road, Gelorup (Figure 1).

The Public Environmental Review (PER) level of assessment is applied to this proposal as it is of regional significance and raises several significant environmental factors (Vegetation and Flora, Fauna and Rehabilitation), which are complex and require detailed assessment. As such the EPA considered that this proposal should be subject to a formal public review period.

Further details of the proposal are presented in Section 2 of this report. Section 3 discusses the environmental factors relevant to the proposal. Section 5 presents the EPA's conclusions and Section 6, the EPA's Recommendations.

Appendix 3 contains the proponent's consolidated commitments. Appendix 4 contains a summary of submissions and the proponent's response to submissions and is included as a matter of information only and does not form part of the EPA's report and recommendations. Issues arising from this process, and which have been taken into account by the EPA, appear in the report itself.

2. The proposal

APH Contractors proposes to extract approximately 2.2 million bank cubic metres of sand from 22.87 hectares over a period of 20 years at an annual extraction rate of 100,000 – 120,000 tonnes per year. Sand will be extracted to a maximum depth of 20m Australian Height Datum (AHD). It is proposed that sand extraction will continue from east of Gelorup Hill and move progressively southwards in 18 sand extraction blocks, each between one and two hectares (Figure 2). Embankments will be restored to 1:4 (14°) slopes and the restored landform will be suitable for potential future residential use.

This proposal, originally for the clearing of 30ha for sand extraction, was referred to the EPA on 13 May 1999 by Giacci Holdings Pty Ltd. By the time the PER was released in November 2003, Pioneer Construction Materials Pty Ltd was nominated as the proponent and the proposal had been reduced to 20ha of clearing. On 24 February 2005, the EPA was notified that the proponent was now APH Contractors and that the amount of clearing proposed was reduced to 18.87ha.

The main characteristics of the proposal are summarised in Table 1 below. A detailed description of the proposal is provided in Section 3 of the PER (Pioneer Construction Materials Pty Ltd, 2003).

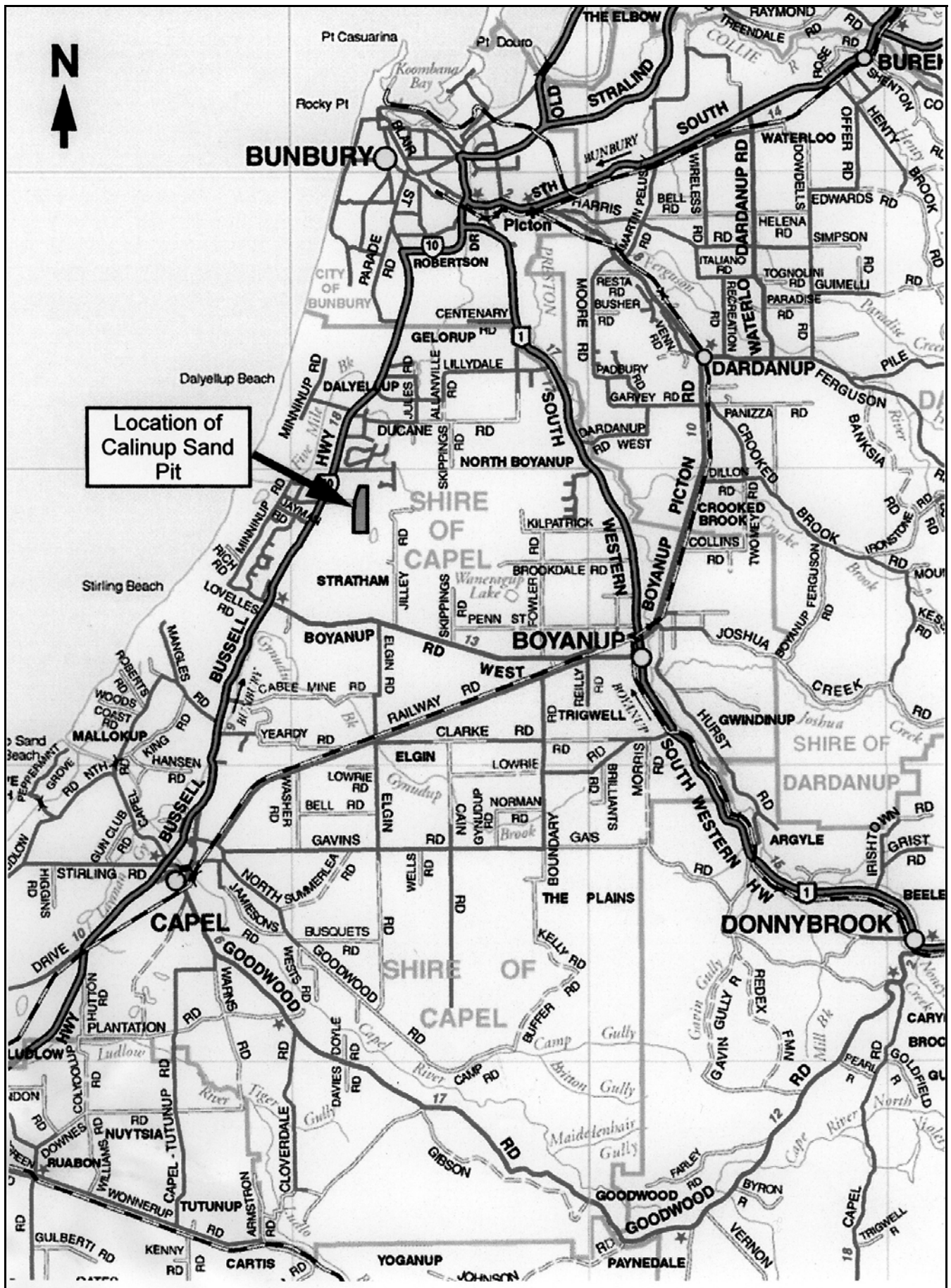


Figure 1: Location Map

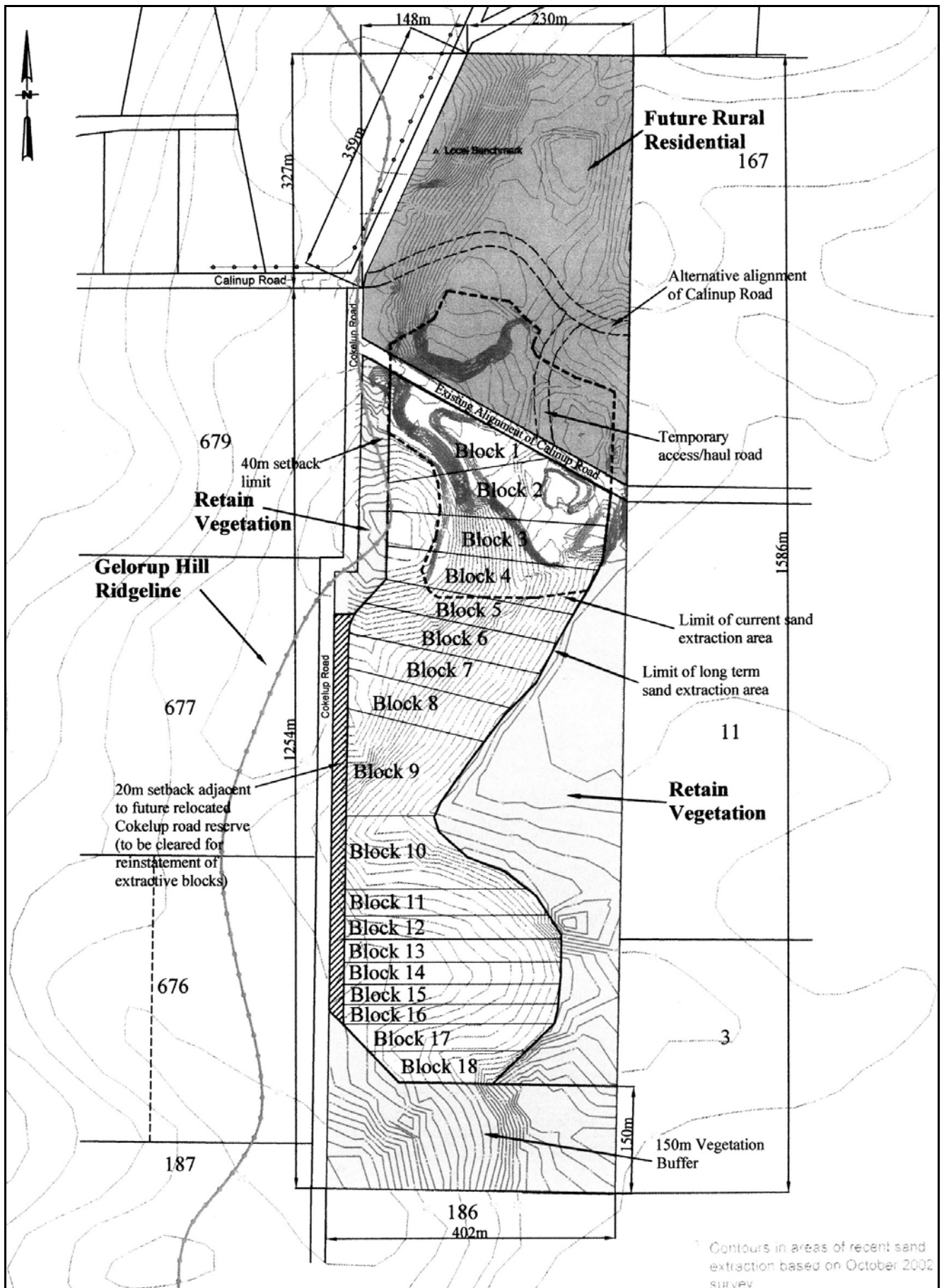


Figure 2: Sand Extraction Blocks (amended since PER)

Table 1: Summary of key proposal characteristics

Element	Description
Life of sandpit	20 years (continual operation)
Size of sand reserve	2.2 million bank cubic metres (upper limit)
Area of disturbance (including access): <ul style="list-style-type: none"> Existing cleared area (central area) Vegetation requiring clearing (southern area) 	4 hectares (approximately) 18.87 hectares (approximately)
Hours of operation	7a.m. to 6p.m. Monday to Friday 7a.m. to noon Saturday, excluding public holidays
Infrastructure/ancillary equipment/facilities: <ul style="list-style-type: none"> Internal access roads Earthmoving equipment Mobile dry screen and conveyor Transportable cribroom/chemical toilet 	5 metres wide with limestone gravel base course Front-end loader for excavation and loading of haulage trucks
Sand extraction rate	180,000 bank cubic metres per year (upper limit)
Sandpit details: <ul style="list-style-type: none"> Depth of excavation Setback limits: <ul style="list-style-type: none"> Eastern boundary Southern boundary Western boundary: <ul style="list-style-type: none"> - Near Gelorup Hill - Next to Cokelup Road Finished slope of embankments 	20 metres AHD 50 to 250 metres (minimum) 150 metres (minimum) 40 metres (minimum); to allow for the future realignment of Cokelup Road 20 metres (minimum) 1:4 (14°) (maximum)
Excavation staging	Three-hectare excavation blocks (maximum)
Sandpit access	Via existing Calinup Road
Post-mining landform	The restored landform will be suitable for future residential development

Since release of the PER a number of modifications to the proposal have been made by the proponent. These include:

- A reduction in the amount of clearing proposed from 20ha to 18.87ha. This is proposed to be done via:
 1. clearing of a further 1.23ha in a 20m wide strip to allow for the future realignment of Cokelup Road further to the east; and,
 2. the establishment of a 150m vegetation buffer distance from the southern boundary of Lot 2 to the extraction area, which eliminates Cell 19 (as

proposed in the PER) and reduces Cell 18. The establishment of this buffer means that the clearing of approximately 2.36ha of vegetation is removed from the proposal.

3. Relevant environmental factors

Section 44 of the *Environmental Protection Act 1986* requires the EPA to report to the Minister for the Environment on the environmental factors relevant to the proposal and the conditions and procedures, if any, to which the proposal should be subject. In addition, the EPA may make recommendations as it sees fit.

It is the EPA's opinion that the following environmental factors relevant to the proposal require detailed evaluation in this report:

- (a) Vegetation and Flora;
- (b) Fauna, and;
- (c) Rehabilitation.

The above relevant factors were identified from the EPA's consideration and review of all environmental factors generated from the PER document and the submissions received, in conjunction with the proposal characteristics.

Details on the relevant environmental factors and their assessment are contained in Sections 3.1 - 3.3. The description of each factor shows why it is relevant to the proposal and how it will be affected by the proposal. The assessment of each factor is where the EPA decides whether or not a proposal meets the environmental objective set for that factor.

3.1 Vegetation and Flora

Description

Representation of ecological communities

This proposal includes the clearing of 18.87ha of Karrakatta Central and South Vegetation Complex (Hedde et al. (1980)). The area of the Karrakatta Central and South Vegetation Complex remaining on the Swan Coastal Plain is 28.7%, of which 2.4% is in secure tenure (EPA 2003).

In the report and recommendations on the Greater Bunbury Region Scheme, the EPA previously stated that the objective for the protection of ecological communities is to seek to

- *preferentially locate developments in cleared areas, where 30% or <30% of the pre-clearing extent of the ecological community remains on the Swan Coastal Plain (EPA 2003).*

Significance of Gelorup Hill

Gelorup Hill, located within Lot 2, is a major regional landscape feature. The Spearwood Dunes of the Greater Bunbury Region are characterised by low relief generally forming extensive flats to the west and bounded to the east by dunes of

slightly higher relief that merge into the Bassendean Sands. The higher eastern dunes are found from Myalup to Gelorup, while south of Gelorup only the low dunes remain (EPA 2003).

The area proposed to be cleared includes the eastern slopes of Gelorup Hill, which is the southern most of the higher eastern dunes.

Regional Ecological Linkage

Lot 2 has a major ecological linkage role as it is part of the Dalyellup/Gelorup/Crooked Brook ecological linkage (part of the larger Dalyellup/Gelorup/Preston River/Plateau ecological linkage) identified in the EPA's report on the Greater Bunbury Region Scheme (EPA 2003).

In this report the EPA stated that

In identifying these ecological linkages the EPA is mindful of the following:

- *naturally vegetated areas (in particular the larger relatively intact remnants) in the area of the Linkages should be priorities for retention and protection, to meet the criteria for regional significance against at least two criteria, that is 'Representation of ecological communities' and 'Maintaining of ecological processes or natural systems';*

Submissions

Public submissions for this factor included statements that less than 30% of the Karrakatta Vegetation Complex-Central and South remains on the Swan Coastal Plain, that Gelorup Hill is a significant local landscape feature and that the site is part of the Dalyellup/Gelorup/Preston River/Plateau ecological linkage.

Some submitters considered that the flora surveys were inadequate to identify Rare and Priority listed flora and that the Muir Vegetation Classification used to assess vegetation was difficult to interpret and compare with other work on the Swan Coastal Plain and did not meet the relevant EPA Guidance for terrestrial flora and vegetation surveys.

Assessment

The area considered for assessment of this factor is Lot 2 Calinup Road Gelorup, Shire of Capel.

The EPA's environmental objective for this factor is:

- to maintain the abundance, diversity, geographic distribution and productivity of flora at species and ecosystem levels through the avoidance or management of adverse impacts and improvement in knowledge; and,
- to maintain the integrity, ecological functions and environmental values of the soil and landform.

The vegetation community covering the site is currently below the EPA's recommended target level for long term protection of vegetation communities. Therefore, further clearing is inconsistent with the EPA's objective for Vegetation and Flora. The site also contains a regional landscape feature and supports vegetation that acts as a significant regional ecological linkage that the EPA considers should be retained and protected.

Summary

It is the EPA's opinion that the proposal is unlikely to be able to be modified to protect the vegetation on the site. Therefore the EPA concludes that the proposal does not meet the EPA's objective for Vegetation and Flora.

3.2 Fauna

Description

The site supports a population of at least one rare species of fauna, the Western Ringtail Possum (*Pseudocheirus occidentalis*). This species is recognised by the State and is subject to protection under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The site also sustains a population of the Priority 4 Western Brush Wallaby *Macropus irma* and is likely to also support the Chuditch *Dasyurus geoffroii* (listed as Vulnerable), the Priority 3 Brush-tailed Phascogale *Phascogale tapoatafa*, the Priority 4 Western False Pipistrelle *Falsistrellus mackenziei* and the Priority 5 Quenda *Isodon obesulus*.

Limited surveys indicate that at least 28 bird species are resident in or use the site, including 9 bird species which are of regional significance as they have declined on the Swan Coastal Plain (Bush Forever 2000). This indicates that the site has regional significance for bird fauna. These declining species are:

Broad-tailed Thornbill *Acanthiza apicalis*,
Common Bronzewing Pigeon *Phaps chalcoptera*,
Golden Whistler *Pachycephala pectoralis*,
Scarlet Robin *Petroica multicolor*,
Grey Shrike-thrush *Colluricincla harmonica*,
Western White-naped Honeyeater *Melithreptus lunatus*,
White-browed Scrubwren *Sericornis frontalis*
Splendid Fairy-wren *Malurus splendens* and,
Yellow Robin *Eopsaltria griseogularis*.

The site may also support populations of two additional bird species (Carnaby's Black Cockatoo *Calyptorhynchus latirostris* and Baudin's Black Cockatoo *Calyptorhynchus baudinii*), that are listed in the EPBC Act and are listed as Endangered under the Western Australian *Wildlife Conservation Act 1950*.

The large size of the vegetated area (approximately 38 ha on Lot 2) plus the contiguous vegetated area to the south, west and east and the landform/vegetation diversity including wetland areas accounts for the number of bird species present including regionally significant species. The site has a major ecological linkage role for fauna.

Submissions

Public submissions for this factor included statements that the method used for fauna surveying was inadequate and that the PER did not adequately identify Rare and Endangered Fauna and Specially Protected (Threatened) and Priority Fauna on the

site. Some submitters also questioned the assertion that fauna would relocate into rehabilitated areas after mining.

Assessment

The area considered for assessment of this factor is Lot 2 Calinup Road Gelorup, Shire of Capel.

The EPA's environmental objective for this factor is to maintain the abundance, diversity, geographic distribution and productivity of fauna at species and ecosystem levels through the avoidance or management of adverse impacts and improvement in knowledge.

Limited surveys of the site have revealed that the proposal site supports habitat for one rare species of fauna, the Western Ringtail Possum, a Priority 4 species of fauna, the Western Brush Wallaby, and nine regionally significant bird species. It is highly likely that the site also supports other vulnerable, endangered and regionally significant fauna.

Summary

Having particular regard to the site:

- (a) supporting habitat for the Western Ringtail Possum, the Western Brush Wallaby and nine regionally significant bird species; and,
- (b) is likely to support other vulnerable, endangered and regionally significant fauna

it is the EPA's opinion that the proposal does not meet the EPA's objective for Fauna.

3.3 Rehabilitation

Description

The proposal principally involves the clearing of 18.87ha of native vegetation in 18 stages or cells. The rehabilitation of these cells is proposed following the completion of extraction. The proponent has committed to preparing a Rehabilitation Plan as part of its Environmental Management Plan as a condition of approval.

The proponent's description of rehabilitation practices involves the reuse of topsoil from newly cleared cells onto previously excavated cells and the planting of seedlings and respreading of seeds harvested prior to the clearing of each cell.

Submissions

Public submissions regarding rehabilitation included statements that the proposed clearing is long-term subdivision rather than a temporary loss of good quality remnant vegetation and that the proposed rehabilitation will not replace the biodiversity levels of the remnant vegetation presently on Lot 2.

Several public submitters stated that before approval the proponent should prepare a full rehabilitation plan that addresses vegetation for the return of fauna, visual amenity, rehabilitation objectives, recalcitrant species, seed collection, topsoil

regeneration, deep ripping, weed management and monitoring. A trial demonstration of successful revegetation was also requested.

The choice of rehabilitation techniques proposed by the proponent, such as direct return of topsoil only, were also questioned as were potential impacts from sand blown onto adjacent properties and previous use of Tasmanian Blue Gums in rehabilitation.

One submission considered that the replacement of topsoil alone would not be acceptable and that the proposed batter slopes (1:4) to be instated after excavation are too steep.

Submissions from the public also included a request to substantially increase the buffer distance separating Gelorup Hill from the excavation cells to minimise the risks of erosion and deterioration of the natural vegetation cover on the crown of the hill.

The monitoring of groundwater and adjoining wetland habitats was also raised as an issue as was the suggestion that a review of the proponent's performance should be included as part of periodic licence renewals.

Assessment

The area considered for assessment of this factor is Lot 2 Calinup Road Gelorup, Shire of Capel.

The EPA's environmental objective for this factor is to ensure, as far as practicable, that rehabilitation achieves a stable and functioning landform which is consistent with the surrounding landscape and other environmental values and that native vegetation, comparable to that which existed before mining, is re-established as a self-sustaining ecosystem.

The EPA considers that the re-establishment of a close approximation of the existing Karrakatta Central and South Vegetation Complex on the site will be extremely difficult and that previous rehabilitation undertaken on the site is inadequate. The proponent has not been able to provide evidence that the rehabilitation proposed will be successful.

Summary

It is the EPA's opinion that the proposed sand pit extension is most unlikely to be successfully rehabilitated and therefore the proposal does not meet the EPA's objective for Rehabilitation.

4. Conditions

4.1 Recommended conditions

The EPA has not included in this Bulletin "conditions and procedures to which the proposal should be subject, if implemented" because the EPA holds the view that the proposal should not be implemented.

5. Conclusions

The EPA has considered the proposal by APH Contractors to extend the existing sandpit on Lot 2 Calinup Road, Gelorup.

The proposal area supports a vegetation complex, a landscape feature and an ecological linkage which are all regionally significant. The re-establishment of the existing vegetation complex on the site after sand excavation will be extremely difficult and the proponent has not been able to provide evidence that the rehabilitation proposed will be successful.

The EPA considers the proposal to extend the existing sandpit on Lot 2 Calinup Road, Gelorup as proposed is environmentally unacceptable as it cannot be managed to meet the EPA's objectives in relation to Vegetation and Flora, Fauna and Rehabilitation.

The EPA therefore concludes that the proposal should not be implemented.

6. Recommendations

The EPA submits the following recommendations to the Minister for the Environment:

1. That the Minister considers the report on the relevant environmental factors of Vegetation and Flora, Fauna and Rehabilitation, as set out in Section 3.
2. That the Minister notes that the EPA has concluded that the proposal does not meet the EPA's environmental objectives for Vegetation and Flora, Fauna and Rehabilitation.
3. That the Minister notes that the EPA has not included in this Bulletin "conditions and procedures to which the proposal should be subject, if implemented" because the EPA holds the view that the proposal should not be implemented.
4. That the Minister not issue a statement that the proposal may be implemented.

Appendix 1

List of submitters

Organisations:

Busselton Dunsborough Environment Centre

South West Environment Centre (Inc)

Thompson McRobert Edgeloe (Town Planning Consultants)

Conservation Council of WA (Inc)

Wildflower Society of Western Australia (Inc).

Capel Land Conservation District Committee

Department of Environment

Department of Industry and Resources

Shire of Capel

Department of Conservation and Land Management

Appendix 2

References

Pioneer Construction Materials Pty Ltd (2003) *Public Environmental Review. Southern Extension of Lot 2, Calinup Road Sandpit, Gelorup, Shire of Capel*. MBS Environmental, November 2003.

Environmental Protection Authority 2003. *Greater Bunbury Region Scheme – Report and Recommendations of the Environmental Protection Authority (Bulletin 1108)*. Environmental Protection Authority. Perth, Western Australia.

Government of Western Australia 2000. *Bush Forever Vol. 2. Directory of Bush Forever Sites*. Department of Environmental Protection, Perth, Western Australia.

Hedde, E.M., Loneragan, O.W. and Havel, J.J. (1980). Vegetation of the Darling System. IN: *DCE 1980 Atlas of Natural Resources, Darling System, Western Australia*. Department of Conservation and Environment, Perth, WA.

Appendix 3

Proponent's Consolidated Commitments

Number	Topic	Actions	Objectives	Timing	Advice from
1	Environmental Management Plan	<p>Development of an Environmental Management Plan for the Calinup Road Sandpit.</p> <p>Among other issues the Environmental Management Plan will address:</p> <ul style="list-style-type: none"> • Noise management. • Dust management. • Vegetation clearing. • Education of the workforce to protect native flora and fauna. • Site rehabilitation. • Closure. 	Provide a systemic framework with environmental performance objectives for environmental management of the sandpit.	Prior to commencement of operation	Shire of Capel, CALM
2	Environmental Management	Implement the Environmental Management Plan	Achieve environmental performance objectives	During operation	Shire of Capel

3	Visual Amenity	<p>Minimise the visual impact of the sandpit through:</p> <ol style="list-style-type: none"> 1. Rehabilitating the upper east facing sandpit slopes of Gelorup Hill which are visible at a distance from the plain by: <ol style="list-style-type: none"> a) reducing the finished visible faces to maximum 1:4 slope. b) covering the reduced slopes with topsoil. c) encouraging the establishment of vegetation through proper topsoil handling. 2. Retaining vegetation setbacks. 3. Minimising the area of disturbance at any one time through progressive extraction followed by progressive rehabilitation. 	To reduce the visual impact of the sandpit extension.	During operation	Shire of Capel
4	Rehabilitation and Closure	Develop a detailed Rehabilitation and Closure Plan	To progressively rehabilitate and decommission the sandpit to a standard consistent with the land use requirements for Lot 2.	Prior to commencement of operation	Shire of Capel
5	Rehabilitation and Closure	Implement the Rehabilitation and Closure Plan.	Achieve the objectives of the rehabilitation and closure plan.	During operation	Shire of Capel

Appendix 4

Summary of Submissions and Proponent's Response to Submissions

Lot 2 Calinup Road GELORUP

Public Environmental Review
(Assessment No. 1301)
Response to Submission

Submission 1**Public Environmental Review: APH Contractors.
Southern Extension of Sandpit - Lot 2 Calinup Road, Gelorup.**

Submitter 1 is opposed to the above proposed development on a number of grounds which include:

- less than 30% of the Karrakatta Vegetation Complex-Central and South remains on the Swan Coastal Plain and therefore what remains should be conserved in accordance with **The National Objectives and Targets for Biodiversity Conservation 2001-2005** (Commonwealth of Australia 2001)

There is no state Policy that there will be no further development on Karrakatta vegetation complex. The 30% criteria is a guideline/position statement that requires consideration. Considerable consideration has been given to these figures within the PER. The fact is that the site is on Karrakatta and clearing will take the percentage of Karrakatta vegetation under 30%. However, the proponent has committed to rehabilitate the area with the intent that the loss is to be temporary. The vegetation is regrowth and previously grazed and does not represent pristine, undisturbed vegetation. Removal will be temporary and following rehabilitation progressively returned to previously vegetated status. If permanent removal in future due to residential development then this will be addressed at the time of residential proposals. In addition, 18 hectares of native vegetation on the property will be retained.

- the proponent's argument that 52% of the Karrakatta Vegetation Complex-Central and South may still occur in the Greater Bunbury Region, which therefore allows further clearing to occur, is totally objectionable. This ecosystem type is not restricted to the Greater Bunbury Region and attempts to justify clearing vegetation on the basis of representation within a region based on boundaries of a non-biological nature should be rejected.

It is not the intent of the PER to suggest that clearing is appropriate based on any one figure quoted. The PER aims to use the most up to date information and determine what impacts are likely and how these can be managed.

This figure (52%) is based on the EPA's document "A Strategy for the EPA to identify regionally significant natural areas in its consideration of the Greater Bunbury Region Scheme portion of the Swan Coastal Plain, August 2002" (GBR Strategy) which subdivides the vegetation complexes into their occurrence on both the Southern Swan Coastal Plain and the Greater Bunbury Region to help determine areas of significance in the Greater Bunbury Region. The proposal is within the Greater Bunbury Region.

Percentages for both the Southern Swan Coastal Plain and the Greater Bunbury Region have been included in the document based on the most up-to-date information available (EPA documentation, August 2002). Figures for the Greater Bunbury Region have been used as a subset of the Swan Coastal Plain and reflect the differences in the Karrakatta Vegetation Complex- Central and South, across the Swan Coastal Plain. In addition, the PER provides details of the vegetation distribution within a 15-kilometre radius of the property and the percentage that the proposed clearing constitutes within the Karrakatta Vegetation Complex within this 15-kilometres radius. The vegetation within this area has more similar values with the vegetation described for the Greater Bunbury Region (52% remaining) than that of

the Swan Coastal Plain, of which only 30% remains. This figure is therefore used as a piece of information used to help assessment of the proposal be determined based on informative selection of information.

- inadequate fauna surveys

How's (1998) study in Bold Park indicates that trapping does not necessarily provide an accurate indication of what species occur on a site, even after a number of years of trapping. Hence, database searches of the Department of Conservation and Land Management, the Western Australian Museum and Environment Australia's Environment Protection and Biodiversity Conservation databases were undertaken to provide information on the species known to occur in the wider area or likely to occur in the area. Fauna/habitat assessments were conducted for the site. The results of the fauna assessments have been incorporated into the PER document.

The survey found:

- Common habitats.
- Previously well documented and researched within the region.
- 22 species of fauna were recorded, one mammal, 19 birds and 2 reptiles.
- lack of a long term land use plan for the area with particular regard to biodiversity conservation

The PER has given considerable thought to the long-term land use of the property, hence the reason why a development concept plan has been provided. The PER and the concept plan discuss the retention of ecological links with the proposal indicating what vegetation will be retained in the mining proposal and how this could correlate to retention in future subdivision proposals.

Submitter 1 respectfully requests that this proposal be rejected by the EPA and that the EPA put forward recommendations that sand mining cease and that the site be rehabilitated to a functioning ecosystem.

The areas of current sand extraction, north of Calinup Road, have been delineated as potential future rural residential development in a number of planning documents. Planning documents have also indicated that the southern portion of Lot 2, the subject of this PER, may be suitable for future residential development. Therefore the rehabilitation of the site will be in a manner that reflects the long-term land use for the site.

Submission 2**Public Environmental Review: APH Contractors.
Southern Extension of Sandpit - Lot 2 Calinup Road, Gelorup.**

Submitter 2 is strongly opposed to the proposal by Pioneer Construction Materials Pty Ltd to extend the current sand extraction operations on Lot 2 Calinup Road Gelorup.

Submitter 2 respectfully requests that the application to extend operations be refused and that the Environmental Protection Authority (EPA) make recommendations for sand mining to cease and rehabilitation of the site to commence.

In specific terms, Submitter 2 holds that incremental clearing of native vegetation, fragmentation, isolation and degradation of natural ecosystems on the Swan Coastal Plain (SCP) have already resulted in a loss of habitat and biodiversity far beyond what can be considered reasonable. It is Submitter 2's contention that the urgent need to preserve and consolidate the remnant natural ecosystems of the SCP, **particularly those that are ecologically viable**, is now self evident, given common recognition of the extreme loss to date.

As the EPA is aware, Lot 2 Calinup Road is located within the Greater Bunbury Region (GBR) and connected to a relatively undisturbed area of bushland which covers a 40-metre ridge-line, the 'Gelorup Rise', extending south to the Boyanup Road West. This vegetated ridge is abutted by extensive wetlands to the east and west and together with its ecological linkages and geographic standing is of outstanding regional significance.

Lot 2 Calinup Road is located on the eastern slopes of Gelorup ridge and abuts residential development along its northern and north-eastern boundaries. It is unlikely to be viable in the long-term, as Lot 2 is identified in the Greater Bunbury Structure Plan (October 1995) as Special Development/residential. This development is likely to occur in the long-term as demand for new residential areas increases. Sequential development of this land and adjoining properties along Gelorup ridge is currently occurring with interim land uses such as sand extraction and future mineral sand mining. The proposal retains vegetation within the southern and eastern portions of Lot 2 as an ecological link. The extracted areas will be reinstated and rehabilitated following sand extraction and form a part of a green belt or subsequently become residential in the future.

The landscape value of Gelorup Hill has been discussed in sections 1.6.5, 1.8, 4.6.7 and 4.6.8, and the management and mitigation of impacts addressed in section 7.1. A reference to these sections was also made in the regional vegetation section.

The case for preservation of the area proposed to be cleared under the PER is supported by the EPA's own document - "A Strategy for the EPA to identify regionally significant natural areas in its consideration of the Greater Bunbury Region Scheme portion of the Swan Coastal Plain, August 2002" (GBR Strategy) - which states in part:

- '78% of the original vegetation along the southern Swan Coastal Plain (SCP) has been cleared' (pp 3, Beeston *et al*, 2001)... 'The GBR is comparable with this as 77% of the original vegetation has been cleared and clearance has occurred in the same general pattern' (pp 7),

- 'In recognition of this high level of clearing on the Plain... in the GBR there is a need to preferentially locate developments in cleared areas on the Swan Coastal Plain' (pp 8 & 10), and
- 'The importance of looking at the region's natural areas as an integrated ecological system is recognised, and the maintenance or establishment of linkage corridors is given a high priority' (pp 12).

The 30% retention is a guideline, while every effort needs to be made to locate development in areas currently cleared there is limited opportunity for extraction of sand resources in currently cleared areas, as most of the areas identified as having potentially high quality sand resources have either been extracted or sterilised by other established land uses. Recognition needs to be given that there is a demand for further resources and it is more suitable to, where possible, extract this from areas where future development will be undertaken. The SCP is one of the fastest growing regions in WA and there is and will continue to be a requirement for future urban and rural residential development. Lot 2 has been identified as being a potential area of such development.

Section 2.7 of the PER states that the resource available per hectare of clearing results in a productive sandpit and minimises the need to clear extensive areas of vegetation. The idea that the development should occur in an area already cleared is not feasible in this instance because extraction needs to occur in areas where the resource exists and is of appropriate quality.

Submitter 2 maintains that it is entirely reasonable, and widely accepted, to argue for the retention of a minimum 30% of native vegetation in any landscape or planning unit in any area where that vegetation still exists. The EPA's GBR Strategy (section 4.2.1) supports this by using a standard level of native vegetation retention of at least 30% of the pre-clearing extent of the ecological communities on the SCP. This view is also supported by *The National Objectives and Targets for Biodiversity Conservation 2001-2005 (Commonwealth of Australia 2001)* document which recognises the objective to retain at least 30% of each native vegetation type that occurs throughout Australia.

This is a guideline/position statement. There has yet to be developed a State policy that consists of a map of all vegetations areas and areas for which further development is no longer permitted because of this 30% figure. If it is the State's intention to prevent further development in areas where 70% or more of the vegetation complex have been cleared then a State policy and developmental constraints map should be developed. Until such time as this occurs it can only be treated as a guideline.

That the 30% figure has already been breached in the Greater Bunbury Region (GBR) is again borne out in *EPA Bulletin 1112 p.6* that states that approximately 141,000 hectares or less than 25% of the landscape is currently occupied by native vegetation.

In addition, the GBR Strategy (Table 6) notes that there is 28.7% of the Karrakatta Complex-Central and South (vegetation complex) remaining on the southern SCP, as percentage of original area on SCP, already below the recommended 30%. It is a spurious argument put forward by the proponent that because 52% of the (original) Karrakatta Vegetation Complex-Central and South may still occur in the Greater Bunbury Region, further clearing can occur. Put simply, less than 30% of the Karrakatta Vegetation Complex - Central and South remains on the Swan Coastal Plain and therefore, as stated **no more clearance** of this vegetation complex can occur.

Percentages for both the Southern Swan Coastal Plain and the Greater Bunbury Region have been included in the document based on the most up-to-date information available (EPA documentation, August 2002). Figures for the Greater Bunbury Region have been used as a subset of the Swan Coastal Plain and reflect the differences in the Karrakatta Vegetation Complex - Central and South, across the Swan Coastal Plain. In addition, the PER provides details of the vegetation distribution within a 15-kilometre radius of the property and the percentage that the proposed clearing constitutes within the Karrakatta vegetation complex within this 15-kilometres radius. The vegetation within this area has more similar values with the vegetation described for the Greater Bunbury Region (52% remaining) than that of the Swan Coastal Plain, of which only 30% remains.

It should also be noted that in the PER document (section 4.6.1 'Regional Vegetation Description' p.33) it states: "Beard (1990) recognised that the Karrakatta Vegetation Complex-Central and South varies from north to south according to rainfall." The argument that 52% of the Karrakatta Vegetation Complex-Central and South still occurs in the Greater Bunbury Region (and is common) is therefore poor, since the vegetation throughout this vegetation complex on the SCP varies considerably, catering for a large range of fauna and flora.

The 52% is quoted from an EPA document. The PER does not actually state that because 52% remains clearing is permitted. It simply provides the facts for which 52% remains within the GBR as defined by the EPA. The variation between the north and south is exactly why a distinction is made.

Submitter 2 is concerned with the methodology of the PER's fauna survey at Gelorup Rise (section 4.7.2) as being less than comprehensive. The surveying techniques, which consisted of two daytime searches and one late afternoon and night search, are not sufficient to adequately account for the fauna that potentially occur within the area in context of its north-south and east-west ecological linkages. Many Australian mammals, such as the chuditch, are also nocturnal and shy and consequently, when searching areas for such mammal species, a sighting would be rare. Standard trapping techniques have been developed to target such mammal species to confirm their presence and movement within specified habitat areas.

How's (1998) study in Bold Park indicates that trapping does not necessarily provide an accurate indication of what species occur on a site, even after a number of years of trapping. Hence database searches of the Department of Conservation and Land Management, the Western Australian Museum and Environment Australia's Environment Protection and Biodiversity Conservation databases were undertaken to provide information on the species known to occur in the wider area or likely to occur in the area. The results of fauna assessment conducted on the site have been incorporated into the document.

The surveys found:

- *Common habitats.*
- *Previously well documented and researched within the region.*
- *22 species of fauna were recorded, one mammal, 19 birds and two reptiles.*

The PER states in part (1.6.1) "it is unlikely that the vegetation of Lot 2 supports any rare or endangered fauna species". This assumption cannot be made without adequate evidence and no evidence is presented in the 'fauna survey' presented in the document.

In three fauna surveys (May 2000, June 2001, and May 2003) on Lot 2 only one listed species Macropus irma, the Brush Wallaby, was recorded on site. This species is highly mobile and is expected to be part of a local population occurring in adjacent vegetation (section 6.5.3).

It is stated that "Eight species of fauna listed as likely to occur at Lot 2 are gazetted under either the *Western Australian Wildlife Conservation Act 1950* or the *Environmental Protection and Biodiversity Conservation Act 1999*" and that "these species have not been observed on the proposed extension area of Lot 2 and adjoining area". This is the case because adequate surveys have not been undertaken. The PER (1.61) then states: "The proximity of the proposed extension to the current sand extraction operation is expected to reduce the likelihood of any of these species occurring on Lot 2." **This is an extremely good reason not to undertake the proposed extension.**

The species are listed as likely to occur within 30 kilometres of Lot 2. As stated above, fauna surveys over the past four years have only observed the occurrence of one listed species on the project area. As the proposed extension is so close to the current operations, there is likely to be little additional effect on these species as a result of the extension.

Conclusions such as: "Progressive clearing will: provide the opportunity for fauna species, which may occur on site, to relocate to the undisturbed areas" are trite to the extreme. There is no consideration that some fauna are territorial and moving to another area that is already occupied is not an option, nor is there any legitimate attempt to explain the consequences of such incremental loss of territory to species that are expected to inhabit the area. The assumption that fauna species which have lost their homes, territories and food sources due to vegetation clearing would 'move' to the next available undisturbed site is naïve. There is no evidence presented to support this claim.

Relocation of species is a common method to improve species survival during disturbance. In some instances the species will relocate to surrounding areas, where this is not possible human intervention, by nature of a translocation programme, can be undertaken. If species of significance require translocation prior to clearing at Lot 2 the proponent will look at implementing such plans.

The PER does not explain how rehabilitation that has 'successfully established' will occur at the same rate as clearing to provide adequate conditions for fauna to return. "To progressively rehabilitate and decommission the sandpit to a standard consistent with the landuse requirements for Lot 2" begs the question as to what the land use requirements for Lot 2 will be after clearing? Submitter 2 has identified a lack of long term planning for the area following the pursuit of its own strategic plan (2004-2005) which seeks to: "*Facilitate the development of community bushland management plans in the Greater Bunbury Region, especially a Bunbury Bushplan*".

The proposal does address the future land requirements. While Submitter 2 may have a strategic plan that promotes bushland management it has no authorisation over private property and just because Submitter 2 has a strategic plan it does not mean it is the right plan to apply to the area. The property has been identified in the Greater Bunbury Structure Plan (1995) as having long-term residential potential and until such development occurs the property will be returned to bushland following sand extraction. The PER addresses the long-term development of Lot 2 in section 3.10 and Appendix 2.

It is therefore disturbing that in Table 1 'Summary of Environmental Factors and Management Rehabilitation - Predicted Outcome', the PER surmises: "Visual impact will be minimised through progressive rehabilitation that has the potential to provide habitat for native fauna, which will be an interim landuse until future residential development of the site for special development." This statement validates and answers the above assumption and question and asserts that the main outcome of rehabilitation is to restore visual aesthetics (for later development) with the 'bonus' of potential provision of habitat to native fauna but with the overall outcome leading towards extra revenue through future residential development.

The proponent recognises that during the planning process consideration needs to be given to the natural environment. One of these considerations is how the sand pit (the business) can be run in a feasible manner and also provide suitable habitat where possible for native fauna. In addition, a number of planning documents have indicated that the site is suitable for future residential development. The proponent must therefore also take these matters into consideration when developing its proposal.

There is no 'big picture' notion of an integrated bush plan with proper and logical planning that favours maximum conservation and linkage corridors (and appropriate development), rather than a proponent thinking and acting in the short term for immediate gain.

The proponent, also the owner of the property has prepared a concept plan. While the outcomes may differ from Submitter 2's preferred outcomes it is in fact a long-term plan that reflects long-term land uses. The regional planning document by the WA Planning Commission addresses these issues.

There are many points in this PER that fall short of the rigour expected when the future of such an important remnant ecosystem of the Swan Coastal Plain is at stake. For example:

- Do any of the Rare and Priority listed flora (Table 8) occur seasonally and was surveying undertaken accordingly? For example was a survey conducted between September and October to sample for *Franklandia triaristata*?

This is covered in the PER in section 4.6.3.1, which states that, "As some species are less evident in February, a second survey to assess species composition with a particular focus on declared rare and priority species was undertaken in October 2000."

- It is possible that contaminated equipment has introduced *Phytophthora cinamomi* into the area after 1999 (4.6.5 Dieback Status of Forest Area) and should surveying be repeated to confirm the absence of dieback?

It is possible for the introduction of Phytophthora cinamomi into the area. Equipment will be monitored and visual evidence of dieback assessed on an ongoing basis.

- "The low presence of weedy species indicated that the health of the existing habitat is good and reflects the impact of present disturbance factors upon the area." (PER: 4.6.8 Habitat Assessment). How is it that that this 'reflects the impact of present disturbance factors upon the area' when reducing the size of the block increases the edge effect with the subsequent increase of weedy species because of the disturbance?

The proponent has committed to incorporate weed management into the EMP that will be developed and implemented for the site.

- There are 6 species listed under the EPBC, 1999 as likely to occur within about 30km of Lot 2 Calinup Road. One daytime search of the property boundary and 3 transects of 200m including and late afternoon and night search (4.7.2 Fauna Survey) represents inadequate replication for meaningful statistical analysis and is not an accepted method for confirming the presence of target fauna within the area. These searches may not have been adequate to detect some of the more timid nocturnal mammal species that may occur within the site, including the chuditch and the western ring-tailed possum.

Section 4.7.2: An additional fauna assessment was conducted in May 2003. The results of this search are incorporated into the PER. The characteristics and likely occurrence of these species on the property are outlined in the PER. Should threatened species occur on the property prior to clearing and extraction the proponent is willing to investigate relocation programs upon advice from CALM.

Submitter 2 supports an outcome to this PER that rejects the extension of the Calinup Road sandpit in favour of a recommendation to implement a planning strategy that develops a strong vision and clearly articulated course of management action for the Gelorup Rise and surrounding area. To this extent, Submitter 2 may be able to provide a catalyst for this action through applying for Federal Government Envirofund grants and using mechanisms such as the GBR, Bushplan and the North Boyanup Structure Plan to facilitate proper planning and ultimate management.

The PER provides a coherent strategy for the use and long-term management of the property, which is owned by the proponent. The PER takes into account the North Boyanup Structure Plan the Greater Bunbury Region Scheme and a number of other planning strategies.

Until such time Submitter 2 respectfully asks that the Pioneer Construction Materials Pty Ltd. proposal for the southern extension of the sandpit at Lot 2 Calinup Road, Gelorup be rejected.

Submission 3**Public Environmental Review: APH Contractors.
Southern Extension of Sandpit - Lot 2 Calinup Road, Gelorup.**

Submitter 3 is a Town Planning Consultant representing a landowner adjacent to Lot 2 Calinup Road. Submitter 3 is currently preparing a Town Planning Scheme Amendment of this adjacent lot to rezone the site from the 'Rural' zone to the 'Special Rural' zone, which will facilitate the subdivision of the site into Special Rural lots and subsequent residential development.

The subject Amendment proposal has been through an extensive process with the Department for Environment and the Department for Planning and Infrastructure and is nearing the final stages. We consider it essential that you give due regard to the above/attached documents, which are adopted by Council, the DPI, DEP and will continue to be progressed over the next 6 months. We request that you ensure that no decision on the PER are adverse to the already seriously entertained proposal over Lot 167.

Initially a proposal was in place to realign Calinup Road northwards and extend this eastward through Lot 167. Later advice from the DEP on this matter, referred to in the above documents (section 3.1.5 Liaison with the Department of Environmental Protection) recommended that Calinup Road not be realigned and extended through Lot 167 because it would result in degradation of the most intact area of vegetation on the site.

The current extractive area is immediately adjacent to Lot 167 and any subdivision and residential development on Lot 167 should take into account the adjoining land use. There should be no further adverse impacts to Lot 167 with the extension of sand extraction south of the existing active operations. As sand extraction advances southwards the distance between the established sand extractive operations and Lot 167 will increase.

You will note that the Amendment for the adjacent lot supports a 500-metre buffer to the sand extraction on lot 2, but only to the extent shown on the Subdivision Guide Plan. Obviously Submitter 3 would not support the encroachment of sand extraction any closer to the adjacent lot, as it would restrict the creation of Special Rural lots within the buffer.

As you will see there is significant work, which has occurred on the adjoining site, which we believe needs to be considered before any decision is made on the PER.

Submitter 3 also questions the classification of Tasmanian Blue Gums as a Native Species and wanted to advise that significant sand was still blowing eastwards from Lot 2 onto the adjacent land.

Tasmanian Blue Gums were planted as approved by the local Council at the time up to and including 1998. The proponent does not support the use of Tasmanian Blue Gums in future rehabilitation and will state its preference to local endemic species.

Submission 4**Public Environmental Review: APH Contractors.
Southern Extension of Sandpit - Lot 2 Calinup Road, Gelorup.**

Submitter 4 is very concerned to learn that this proposal involves further clearing of vegetation complexes that are on or below 30% of their original extent.

Vegetation figures for the Swan Coastal Plain, Outside the Perth Metropolitan Area

Heddlie et al (1980) Vegetation Complex	Original area Ha	Area Remaining Ha	Percentage Remaining On all tenures	Area on all CALM managed land	*Area in Secure Conservation reserves	*Percentage in Secur Conservation reserve
Karrakatta Complex - Central and South Open forest & woodland Swan Coastal Plain- Aeolian deposits	15,315	4,630	30%	2,186	1,226	8%
Guildford Complex Open to tall open forest and woodland Swan Coastal Plain fluvial deposits	68,064	1,710	3%	83	9	0%

*Secure Conservation reserves are those are National Parks, Nature Reserves, Conservation Parks and CALM managed Section 5(g) reserves. These reserves meet the International Union for Conservation and Nature's (IUCN) categories I - IV.

In Bulletin 966 *Clearing of Native Vegetation - Environmental advice on the issues arising from use of Section 38 to assess clearing proposals in the agricultural area, and implications for the other areas of Western Australia*, Section 5 makes reference to the National Strategy for the Conservation of Australia's Biological Diversity. The EPA noted that if less than 10% of a vegetation complex remains, then the complex is to be considered "endangered".

Section 5 (iii) affirms the EPA's position:

... it is not acceptable to clear below the threshold level of 30% anywhere;

The 30% retention is a guideline, while every effort needs to be made to locate development in areas currently cleared there is limited opportunity for extraction of sand in currently cleared areas, as most of the areas identified as having potentially high quality sand resources have either been extracted or sterilised by other established land uses. Recognition needs to be given that there is a demand for further resources and it is more suitable to, where possible, extract this from areas where future development will be undertaken. The SCP is one of the fastest growing regions in WA and there is and will continue to be a requirement for future urban and rural residential development. Lot 2 has been identified as being a potential area of such development.

There has yet to be developed a State policy that consists of a map of all vegetations areas and areas for which further development is no longer permitted because of this 30% figure. If it is the State's intention to prevent further development in areas where 70% or more of the vegetation complex have been cleared then a State policy and developmental constraints map should be developed. Until such time as this occurs it can only be treated as a guideline.

The proponent has incorrectly used the 15km vegetation statistical analysis tool. Statistics have not been presented that discuss the representation of **Karrakatta Complex Central and South** in the local area defined by a 15km radius.

Section 4.6.2 states the vegetation on Lot 2 (38 hectares) represents 0.3% of the existing vegetation within a 15-kilometre radius of Lot 2 and 1.1% of the existing vegetation on the Karrakatta Vegetation Complex - Central and South.

Soil micro-organisms

No discussion has been made of the impacts of the proposal on soil micro-organisms.

Examples of beneficial soil micro-organisms are:

- *Mycorrhizal fungi* - that help with plant nutrient uptake. Many WA native orchid species have a requirement for a *mycorrhizal* symbiont. To germinate successfully they need *mycorrhizal fungi*.
- *Rhizobia* - that are bacteria which colonise roots of leguminous plants, such as *Acacia species*, in so doing they cause the formation of root nodules in which the bacteria can fix atmospheric nitrogen; and
- *Frankia* - that can also fix nitrogen with specific host species like *Casuarina* and *Allocasuarina* species.

The PER document addresses the issues outlined in the Department of Environment's guidelines prepared for the project. Soil micro-organisms were not a specific area to be addressed, however the proponent has made a commitment to manage topsoil where possible such that it will be returned to complete areas as soon as it is stripped from new areas. By managing topsoil in this manner it is anticipated that minimal impacts will occur.

Page 41 of the PER claims that Lot 2 does not contribute valuably to the genetic diversity of the region, genetic diversity or survival of natural values. Submitter 4 strongly disputes this claim.

The statement that Lot 2 does not contribute significantly to the genetic diversity of the region is based on the following points:

- *Because of the properties limited size*
- *Existing and previous disturbance on the property*
- *The species recorded on Lot 2 are widespread over much of the southern portion of the Swan Coastal Plain.*

NEED FOR AN ECOLOGICAL RESTORATION PLAN

As absolute minimum the proponent should develop an ecological restoration plan that includes the following:

Rehabilitation objective

The proponent has committed to developing a rehabilitation plan.

Recalcitrant species

It is recommended that a species list be developed that clearly identifies recalcitrant species.

A list can be developed of recalcitrant species.

Seed Collection

Time of year for seed collection of each species needs to be indicated.

The proportional content of the seed mix and the optimum application/seeding rate will need to be calculated.

In the event that native vegetation does not establish in certain areas from topsoil replacement during progressive rehabilitation, then planting of seedlings has been preferred for rehabilitation. However direct seeding will also be considered. These details will be discussed with the local shire and inserted within the rehabilitation plan where appropriate.

Topsoil Regeneration

What time period will elapse between clearing and spreading?

This will depend on demand for sand however as stated in the PER the proponent will operate such that where possible topsoil will be transferred to previously extracted and reinstated areas upon clearing of the new area being opened up. Extraction blocks are approximately up to three hectares per block and depending on demand for sand may take up to two years before extraction is completed. The completed and re-landscaped block will be covered with topsoil removed from the next extraction block. Therefore clearing and spreading occurs at the same time.

Deep Ripping

Please provide information on the extent of sand compaction that will occur through the use of machinery, and explain why this problem will not need remedying by deep ripping.

This will be addressed in the rehabilitation plan and may vary from extraction block to extraction block depending on time lapsed between removal of sand. The rehabilitation plan is a document that will be reviewed on a routine basis, such issues as compaction will be reviewed and options to minimise compaction and restore any areas of compaction will be developed. The dune sand does not easily become compacted, based

on extraction in the existing sand pit. The reinstated areas remain highly permeable and comprise loose sands. Prior to placement of topsoil, the surfaces will be re-contoured to achieve desired landforms and slopes.

Weed Management

A comprehensive weed management plan needs to be developed.

Weeds are addressed in section 4.6.6 of the PER, which provides the name of the eight weed species located in the southern portion of Lot 2. The proponent has committed to address weed management as a component of the Environmental Plan to be developed and implemented for the proposal.

Submission 5**Public Environmental Review: APH Contractors.
Southern Extension of Sandpit - Lot 2 Calinup Road, Gelorup.**

Submitter 5 welcomes the opportunity to make a submission regarding the proposal by Pioneer Construction Materials Pty Ltd to extend the current southern sand extraction operations on Lot 2 Calinup Road, Gelorup.

Biodiversity Conservation

The southern extension of the sandpit on Lot 2 is located on the Spearwood Dune System and supports vegetation typical of the Karrakatta Vegetation Complex Central and South (PER, p.33).

On the Swan Coastal Plain (SCP) 78% of original vegetation has been cleared. A total of 30% Karrakatta Complex-Central and South remains on the Spearwood dune system on the southern SCP of which 9% remains in secure tenure. In the Greater Bunbury Region (GBR) 77% of original vegetation has been cleared. A total of 52% of the Karrakatta Complex-Central and South remains, of which 16% is in secure tenure within conservation reserves (EPA, 2002).

Lot 2 is not in the "GBR Constrained Area" (urban, urban deferred and industrial zoned) and the criteria that applies to Lot 2 is to

- retain at least 30% of the pre-clearing extent of the ecological communities in the GBR where >30% of an ecological community remains on the SCP;
- Preferentially locate developments in cleared areas where 30% or <30% remains on SCP (EPA, 2002).

There has yet to be developed a State policy that consists of a map of all vegetations areas and areas for which further development is no longer permitted because of this 30% figure. If it is the State's intention to prevent further development in areas where 70% or more of the vegetation complex have been cleared then a State policy and developmental constraints map should be developed. Until such time as this occurs it can only be treated as a guideline.

The idea that the development should occur in an area already cleared is not feasible in this instance because extraction needs to occur in areas where the resource exists and is of appropriate quality.

Lot 2 has been identified in the Greater Bunbury Structure Plan (1995) as potential future residential and in the State Planning Policy No. 10, Strategic Minerals and Basic Raw Materials Resource Policy as the northernmost area of potential sand supply south of Bunbury.

Karrakatta Vegetation Complex - Central and South is currently cleared to 30% on the SCP, so further clearing on Lot 2 is not consistent with this objective. We also highlight that this complex is poorly reserved with only 9% and 16% is in secure tenure within conservation reserves on the SCP and GBR respectively. This is well below the *National Objectives and Targets for Biodiversity Conservation 2001-2005* (Environment Australia, 2001) which recognised that the retention of 30%, or more, of the pre-clearing extent of each ecological community was necessary if Australia's biological diversity was to be protected. This level

of recognition is in keeping with the targets set in the EPA's Position Statement #2. Both the SCP and GBR are under increasing pressure of rapid urbanisation, and representation of this complex outside secure tenure *will* be substantially reduced in the near future under current conditions. Submitter 5 does not support the clearing of remnant vegetation on Lot 2 for sand mining and future residential development.

The Environment Australia 2001, National Objectives and Targets for Biodiversity Conservation 2001 -2005 recognises that all vegetated areas can not be preserved in reserves and recognises that some of this land will remain in private ownership. Submitter 5 acknowledges that urbanisation will occur and accordingly the need for construction materials required for future residential and infrastructure development. The GBRS recognises that clearing of Karrakatta Vegetation Complex will reduce vegetation to less than 30% and has identified potential ecological corridors/links to retain vegetation. The proponent has indicated that as part of this proposal 18 hectares of native vegetation can be retained which contributes to the provisions of an east west ecological link in the area.

Rehabilitation

20ha of Karrakatta Vegetation Complex – Central and South will be cleared on Lot 2. "The commitment to rehabilitate the area using native species ensures that this will only be a temporary loss." "At this stage vegetation on Lot 2 is in good condition with a reasonable degree of species diversity, of moderate health." (PER, p.42) Although the rehabilitation methodology appears sound (i.e. progressive rehabilitation; direct transfer of topsoil), letters (Appendix 7) suggest past rehabilitation work is of a very poor standard. Furthermore, what incentive does the proponent have to establish high quality vegetation when "The rehabilitated landform will be created to be suitable for future development of the southern portion of Lot 2 for rural-residential blocks and for rural/special purpose land?" The clearing is obviously not a temporary loss of 20ha of good quality remnant vegetation, but clearing for long-term subdivision. Rehabilitation and future land-use proposals cannot be used to justify or offset the loss of 20ha of good quality and poorly reserved remnant vegetation.

Submitter 5 acknowledges that the proposed rehabilitation method is suitable. Past rehabilitation was not implemented in a similar manner as no topsoil was saved and clearing was carried out on a larger scale with no direct transfer of topsoil. The proponent is undertaking to rehabilitate in progressive blocks as given in this PER. Comparisons cannot be made to previous practices.

A number of planning documents have indicated that the site is suitable for future residential development. The proponent must therefore also take these matters into consideration when developing its proposal. The property needs to be rehabilitated as an interim measure until future residential development occurs. The Shire of Capel and other stakeholder groups and authorities have expressed that they wish to see the property returned to native vegetation until subsequent development occurs. The vegetation will be a temporary loss under the extractive proposal and a permanent loss of regrowth vegetation should residential development occur in the future.

It is anticipated that approval to develop the extractive proposal will be approved subject to conditions. It is within the EPA's scope to approve the proposal subject to a rehabilitation plan being developed and approved by the relevant agencies prior to extraction beginning.

Average species richness in FCT 21a is 54.6 species per plot (the majority of Lot 2) and for community 21c is 40.5 species per plot (eastern corner of Lot 2) (PER, p.33). Submitter 5 does not believe that rehabilitation work can replicate biodiversity levels of the remnant vegetation on Lot 2. Monitoring & maintenance (PER, p.66) provides no commitment to level of rehabilitation or level of species diversity to be achieved. It merely states; "the rehabilitated areas will be monitored and maintained where deemed necessary [necessary by whose standards?], by way of herbicide treatment, fertilising and infill planting. Should this proposal be approved the EMP must stipulate the level of diversity to be achieved.

It is anticipated that rehabilitation criteria will be developed in conjunction with the appropriate authorities as part of development of a rehabilitation plan and that routine monitoring will be measured against these criteria.

Flora Survey

The Muir Vegetation Classification (Appendix 3) using mean vegetation health ("moderate health on Lot 2") and "within unbounded 30m transects" are terminology and methodology that was difficult to interpret or compare with other work on the SCP. Also, there is no information given on the number of transects surveyed, area covered, or distinction given to plant diversity during the February 1999 survey or the October 2000 survey. This level of work and brevity of results was both frustrating and, we believe, inadequate and does not meet Draft EPA Guidance Statement #51 *Terrestrial flora and vegetation surveys for environmental impact assessment in Western Australia*. Standard sampling procedures and terminology commonly used on the SCP (e.g. outlined in *Bush Forever*) should have been employed to the standards of this Guidance Statement.

These methods were employed because the Department of Environment advised the proponent at the time that these methods should be used and accepted by the Department of Environment in finalising the PER.

Yours sincerely

Submitter 5

Reference

Environmental Protection Authority (2002) *A Strategy for the EPA to Identify Regionally Significant Natural Areas in its Consideration of the Greater Bunbury Region Scheme Portion of the Swan Coastal Plain*.

Environmental Protection Authority (2003) *Terrestrial flora and vegetation surveys for environmental impact assessment in Western Australia*. Draft EPA Guidance Statement #51

Submission 6**Public Environmental Review: APH Contractors
Southern Extension of Sandpit - Lot 2 Calinup Road, Gelorup.**

Submitter 6 wishes to comment on this proposal as it is seen as important in the long-term future of the Gelorup area.

General Comment

Submitter 6 recognises the need for sand in building and other industries but sees the practice of filling wetlands and poorly drained areas as a major contributor to the excessive use of sand resulting in larger sandpits than would otherwise be required.

The yellow sand is of a high quality and will be mainly used for concrete and construction purposes other than fill. Some of the overburden sand will be used for construction and fill sand, while the remainder will be used for reinstatement of the sand pit as part of rehabilitating the property.

The proposal to extend the existing excavated area will result in a significantly larger denuded tract of exposed sand. This area would require considerable input of money and technical knowledge to have any chance of successful rehabilitation – if this is indeed possible.

The proponent has committed to develop a rehabilitation plan. Rehabilitation will be progressive to minimise the area that is cleared at any one time.

Revegetation

We would require a trial demonstration of successful revegetation of an existing denuded area of the sandpit before any further clearing was permitted. If the extension were to proceed in stages we would expect that revegetation would need to be maintained to an agreed schedule before any further clearing was permitted.

As no topsoil is currently available on site, clearing would be required to undertake such a trial. The proponent has proposed progressive rehabilitation such that rehabilitation success as the project progresses can be monitored and improvements made for the next extractive block if required.

It is not the role of Submitter 6 to suggest how revegetation should take place, but direct seeding of replaced topsoil of hardy species such as *Kunzea ericifolia*, *Jacksonia* and some of the coastal wattles may be successful if coupled with adequate management practices. Replacement of topsoil alone would not be considered acceptable.

The proponent acknowledges that topsoil alone may not achieve satisfactory results, therefore they have proposed using topsoil which will, where possible, be handled as little as possible such that clearing of topsoil for one area will be applied to recently completed areas of extraction such that disturbance to the seed source and soil biota is minimised. Such topsoil management has been proven successful in rehabilitation throughout the mining industry. It is also recognised however that seeding and seedling planting are quite often required to achieve successful rehabilitation results. Therefore the proponent has also stated in the PER (i.e. sections 1.4.3 and 3.9) that native species will be used to supplement

vegetation establishment from the seed bank in the topsoil. The species suggested by Submitter 6 will be considered in the development of the rehabilitation plan.

The weed species listed in Table 4-1 do not appear to pose a significant threat if these are the only weeds present. Inspection of other extraction area operated by the previous owners reveal a much wider range of difficult to control weeds.

A weed management plan to minimise the spread of weeds will be included in the Environmental Management Plan that the proponent has committed to developing and implementing as part of the project.

Other points of concern

Excavated area

The proposed batters are too steep (1:4) and need to be significantly reduced to alleviate problems for any significant use of this land.

1:4 is the batters for the sand extraction. Future land use (i.e. residential) will be subject to another approval and slopes will be addressed in that approval process. Section 3.10 and Figure 9 of the PER provide details of the long-term landform development.

The Gelorup Hill is a significant local landmark and should be protected by not allowing any excavation above the 55m mark. The PER offers no protection. The setback along Cokelup Road should not be less than 40m opposite lots 676 & 677. The present area of excavation is unattractive and is clearly visible from the Boyanup area, 14/15kms away.

The crest and western slopes of Gelorup Hill will not be excavated. A 40-metre separation will be achieved by maintaining a 20-metre setback and the 20-metre wide reserve of Cokelup Road between Lots 676 and 677 and the nearest extraction. Progressive rehabilitation will minimise any visual impact. The trees to the east of the extractive areas will screen the excavated slopes and the areas along Cokelup Road and around Gelorup Hill. The visual assessment in section 7.1 of the PER discusses this issue in some detail.

It is not known what effect the clearing will have on local hydrology. More studies are suggested.

The adjoining land east of Lot 2 that has been cleared and is under pasture provides an example of the impact of clearing on local hydrology. The wetlands east of Lot 2, with the exception of the adjoining wetland which has been dammed, appear to be functioning as natural wetlands. The retention of trees between the wetlands and the excavation will maintain the existing hydrological balance while progressive clearing and rehabilitation of the more elevated areas will not affect water levels. Extraction will be more than two metres above high water table.

Wind blown dust

Further extraction particularly from higher ground may result in increased nuisance of wind blown sand. The PER assumes the prevailing wind direction when actual wind gauging studies should be initiated to determine actual wind strength and direction of prevailing winds. This should take place over a period of at least two years.

Meteorological data collected in the South West indicates the prevailing wind directions and the PER has been based on this. Present conditions within northern Lot 2 indicate that windblown issues only occurred on the eastern boundary, never to the north, west or south. This windblown sand issue could be attributed to the extensive areas of clearing and extraction exposed at any one time, the lack of topsoil and the absence of a mulch or similar vegetation. This will not occur on southern Lot 2 as only one two to three hectare block will be exposed at any one time. The southern areas will be completely surrounded by embankments and woodland. No studies or gauging will add to the knowledge already gained.

Other comments

An environmental management plan must be developed prior to any approval. What public consultation had occurred in relation to this Public Environmental Review? Submitter 6 was stated to be a recipient of a copy of the PER but this did not happen. Information has been gleaned from the Shire copy (Page 9 Draft Specific Guidelines Calinup Road).

An EMP will be required as a condition of environmental approval and developed prior to commencement of extractive operations to the satisfaction of the relevant authorities. PER documents with covering letter were addressed and sent to each recipient listed. No copies of the PER were returned because the recipient could not be located. It was therefore the proponent's belief that all relevant stakeholders and interested parties were advised and given the opportunity to comment on the proposal. The PER was advertised on 24 November 2003 and 5 January 2004 in The West Australian and on 20 November 2003 in the South Western Times.

Conclusion

Submitter 6 is concerned at the size of this proposal and although we would like to see a satisfactory outcome we cannot stand back and allow continued denudation of fragile sands to occur without voicing our concerns and suggestions for minimising the deleterious effects of extended sand excavation at the Calinup Road site.

All concerns and suggestions are received, acknowledged and addressed or incorporated through the PER process to design and develop an extractive proposal for Lot 2 which will manage any potential adverse environmental impacts while recognising the potential land use of the property.

Yours sincerely

Submitter 6

Submission 7 – Department of Environment (DoE)**Public Environmental Review: APH Contractors.
Southern Extension of Sandpit - Lot 2 Calinup Road, Gelorup.**

Issues are ordered under the numbered sections in the PER.

Overall the PER is still lacking in detail and rigour and fails to address the natural values of the area in a regional context.

The proponent addressed the DoE's comments during the draft stages. The DoE then approved the document for advertising based on the proponent's response to these comments. It would appear that if the DoE still had problems with the details incorporated in the document it should have requested additional information after our initial comments/responses were made and prior to the document being approved for advertising by the DoE.

4.6 VEGETATION AND FLORA**4.6.2 Regional Vegetation Coverage**

This section is very confusing and mixes the use of percentage figures for representation from a series of areas. The area of the Karrakatta Central and South Vegetation Complex remaining is below 30% (28.7% EPA 2003) on the Swan Coastal Plain. This issue should be addressed for the Swan Coastal Plain not the Greater Bunbury Region (GBR).

Percentages for both the Southern Swan Coastal Plain and the Greater Bunbury Region have been included in the document based on the most up-to-date information available (EPA documentation, August 2002). Figures for the Greater Bunbury Region have been used as a subset of the Swan Coastal Plain and reflect the differences in the Karrakatta Vegetation Complex- Central and South, across the Swan Coastal Plain. In addition, the PER provides details of the vegetation distribution within a 15-kilometre radius of the property and the percentage that the proposed clearing constitutes within the Karrakatta Vegetation Complex within this 15-kilometres radius. The PER describes and discusses the Karrakatta Vegetation Complex for the entire Swan Coastal Plain, the Karrakatta Vegetation Complex - Central and South, the Greater Bunbury Region and within a 15-kilometre radius of the property. This is required to allow the impact of the proposed clearing to be assessed in its full context and is a requirement of the EPA. The vegetation within this area has more similar values with the vegetation described for the Greater Bunbury Region (52% remaining) than that of the Swan Coastal Plain, of which only 30% remains.

This section begins with reference to the Environmental Protection Authority (2002, unpublished version of EPA 2003), *A Strategy for the EPA to Identify Regionally Significant Natural Areas in its Consideration of the Greater Bunbury Region Scheme Portion of the Swan Coastal Plain*. However the PER does not adequately address the following three regional issues raised in EPA (2002) and identified in our previous comments. These are:

(i) Representation of ecological communities i.e.

For the Greater Bunbury Region (except for lands identified in the 'GBR Constrained Area') this means the objective is to seek to:

- retain at least 30% of the pre-clearing extent of the ecological communities in the GBR, where >30% of an ecological community remains on the Swan Coastal Plain

The PER states that 14,729 hectares of the Karrakatta Vegetation Complex - Central and South remains on the Swan Coastal Plain. This proposal requires the clearing of 20 hectares. This equates to 0.14 percent of the remaining Karrakatta Vegetation Complex - Central and South.

The PER highlights that the proponent has made a commitment to progressively rehabilitate the area by direct placement of cleared topsoil onto reinstated surfaces, thereby establishing native vegetation from the stored seedbank in the topsoil. The loss of this vegetation will be temporary, as stated in sections 1.4.3, 1.7, 1.8, 3.9, 6.4, 6.5 6.6, 8 and 9 of the PER.

The 30% retention is a guideline, while every effort needs to be made to locate development in areas currently cleared there is limited opportunity for extraction of sand in currently cleared areas, as most of the areas identified as having potentially high quality sand resources have either been extracted or sterilised by other established land uses. Recognition needs to be given that there is a demand for further resources and it is more suitable to, where possible, extract this from areas where future development will be undertaken. The SCP is one of the fastest growing regions in WA and there is and will continue to be a requirement for future urban and rural residential development. Lot 2 has been identified as being a potential area of such development.

- preferentially locate developments in cleared areas, where 30% or <30% of the pre-clearing extent of the ecological community remains on the Swan Coastal Plain (EPA 2003)

Section 2.7 of the PER states that the resource available per hectare of clearing results in a productive sandpit and minimises the need to clear extensive areas of vegetation. The idea that the development should occur in an area already cleared is not feasible in this instance because extraction needs to occur in areas where the resource exists and is of appropriate quality.

Lot 2 is not in the constrained area and is on the Karrakatta Central and South complex which is currently cleared to 30% on the Swan Coastal Plain. Therefore further clearing is inconsistent with this objective.

There has yet to be developed a State policy that consists of a map of all vegetations areas and areas for which further development is no longer permitted because of this 30% figure. If it is the State's intention to prevent further development in areas where 70% or more of the vegetation complex have been cleared then a State policy and developmental constraints map should be developed. Until such time as this occurs it can only be treated as a guideline.

(ii) Significance of Gelorup Hill

The Spearwood Dunes of the GBR are characterised by low relief generally forming extensive flats to the west and bounded to the east by dunes of slightly higher relief that merge into the Bassendean Sands. The higher eastern dunes are found from Myalup to Gelorup, south of Gelorup only the low dunes remain (EPA 2003).

Gelorup Hill is the southern most of the higher eastern dunes and the significance of this should be adequately discussed.

The landscape value of Gelorup Hill has been discussed in sections 1.6.5, 1.8, 4.6.7 and 4.6.8, and the management and mitigation of impacts addressed in section 7.1. Gelorup Hill will not be lowered as part of the extractive proposal and the ridgeline and hilltop are located in the western extractive setback.

(iii) Lot 2 and its relationship to any 'regionally significant sequences of ecological communities' or regional ecological linkages.

The EPA Strategy (EPA 2003) recognises four predominantly vegetated regionally significant sequences of ecological communities within and between the major landform elements in the GBR. The area of this proposal is part of one of these, the Dalyellup/Gelorup/Preston River/Plateau ecological linkage.

The setbacks section of the PER discusses the vegetation that will be retained and how this will help maintain a link between the wetlands to the east and west (through vegetation being retained on the eastern portion and the southern portion of the property).

4.6.3 Vegetation and Flora of Lot 2

In reference to the DOE's previous advice about the adequacy of the survey, the DOE can supply access to plot based data on some adjacent areas. Some of this data is published in Gibson *et al* (1994) and Keighery and Longman (2002).

Could the DoE please provide this information to allow the proponent to assess its relevance to Lot 2.

4.6.4 Rare and Priority Listed Flora

This section is somewhat limited; it should be expanded to consider flora generally and consider significant flora, not just 'Rare and Priority Listed Flora'. Other priority species possible in the area are: *Jacksonia sparsa* and *Lasiopetalum membranaceum* these have been mentioned briefly but not expanded in the report. It is possible that *Jacksonia furcellata* recorded for the lot is actually the Priority species *Jacksonia sparsa*.

General flora issues are covered in the Vegetation and Flora section (4.6.3). Podocarpus drouynianus occurs on site near its most northern limit. This is discussed in section 4.6.7 and was also incorporated into the section on rare and priority flora. The two species suggested by the DoE have been included in the rare and priority flora section, although it has been noted that these were not listed as a result of database searches.

4.6.7 Evaluation of Vegetation on Lot 2

As outlined above this is limited by the form of the information collected. To place Lot 2 regionally according to its natural values, this section needs to consider the following:

- Gelorup Hill
 - variation in the vegetation from north to south, condition of vegetation, adjacent vegetation (especially the conservation category wetland – Cokelup Swamp to the west) and EPP lakes to east
 - regional values of Gelorup Hill;

- specific values of Lot 2 in Dalyellup/Gelorup/Preston River/Plateau Ecological Linkage; and
- representation of Karrakatta Central and South complex on the Swan Coastal Plain.

This section was updated prior to the PER being approved for advertising by the DoE. It was updated to include more information on the clearing and condition of adjoining land, the condition of surrounding EPP wetlands and Gelorup Hill.

4.7 FAUNA

The PER down plays the significance of Lot 2 as an ecological linkage for fauna contrary to the conclusion of the Fauna Assessment in Appendix 5 (Bamford 2003).

The fauna assessment concludes that Lot 2 is expected to support a rich vertebrate fauna including a number of species of conservation significance (discussed in Bamford, May 2003 report). The proposed sandpit expansion will adversely impact upon the fauna, including these significant species, through habitat loss. The impact may extend beyond the boundaries of the study area for some birds and mammals, as Lot 2 forms part of a much larger area of native vegetation.

Habitat loss and the reduction of linkage can be managed through adequate rehabilitation after sand extraction. The importance of habitat in the study area will depend upon regional conservation planning. If areas to the east and west are reserved for conservation, the area of habitat within Lot 2 will be of little significance in a local context, since large areas will be protected nearby. However, the role of Lot 2 in providing linkage between these areas will be great. Conversely, if nearby areas are not reserved for conservation, the area of habitat in the study area may be of local significance but its role in providing linkage will be reduced.

The extractive proposal retains vegetation within the southern and eastern portions of Lot 2 as an ecological link. The extracted areas will be reinstated and rehabilitated following sand extraction and form a part of a green belt or subsequently become residential in the future.

4.7.2 Fauna Survey

Table 9 lists 9 bird species present which have declined elsewhere on the Swan Coastal Plain between Perth and Bunbury and are of regional conservation significance (Government WA 2000), however the significance of these species has not been discussed in the document. At least seven of the scientific names used in Table 9 are misspelt.

The significance of these species is discussed in the Fauna Assessment in Appendix 5 (Bamford 2003). Misspelt names will be corrected in future documentation applicable to this proposal.

4.7.3 Specially Protected (Threatened) and Priority Fauna

There has not been an adequate survey to determine the likely presence of these species. The "baseline studies to identify existing fauna in the project area" as listed in the "Draft Specific Guidelines" (Appendix 1) have not been adequately undertaken. The survey in May was inadequate to record many vertebrate species especially those that have peak activity times in

spring and summer. Some of the information presented especially that on Chuditch and Western Ringtail Possum gives no references or data source.

An additional fauna survey will be undertaken to address the likely presence of specially protected (threatened) and Priority fauna. This information will be provided to the DoE. The information contained in sections 4.7.2 and 4.7.3 is taken from the Bamford (May 2003) assessment of Lot 2 unless stated otherwise.

Despite the heading of this section there is inadequate consideration of Priority fauna. For example, Appendix 5 includes 5 Priority species (e.g. Quenda, Western Brush Wallaby, Western False Pipistrelle, Brush-tailed Phascogale, Masked Owl) that are not considered in this section.

All of the above fauna are discussed in section 4.7.2 and are adequately described in Appendix 5.

4.8 GENERAL

The PER makes a series of inaccurate statements about the values of the site and the impact of the proposal on these values without being supported by references, for example:

“Rehabilitation of the area with native vegetation will ensure that this (clearing 20ha of vegetation) will be a temporary loss.”

“The vegetation assessments undertaken on Lot 2 demonstrate that the vegetation does not contribute valuably to either (maintaining ecological processes by conserving genetic diversity of the region and survival of natural values) of these factors.”

“Clearing of vegetation on Lot 2 will be undertaken in stages, which will provide the opportunity for species to move ahead of clearing and relocate into other areas.”

The assessment document should clearly identify the natural values of the site put them in the local and regional context and then accurately outline the impact the proposal will have on those natural values.

The PER describes the vegetation and natural values of Lot 2 and the region and discusses the proposal to clear 20 hectares and potential impacts and measures to mitigate such impacts. Observations and findings are stated in the PER document.

10. REFERENCES

The following references:

How, R.A., Dell, J. and Humphreys, W.F. (1987). The ground vertebrate fauna of coastal areas between Busselton and Albany, Western Australia. *Records Western Australian Museum* 13: 553-574.

Storr, G.M. and Johnstone, R.E. (1988). Birds of the Swan Coastal Plain. *Records of the Western Australian Museum Suppl.* No. 28.

have not been included in the reference list for the PER or the fauna assessment (Bamford 2003).

A number of other references (e.g. Doyle 2000, Bamford 1997, How *et al.* 2001, Aplin and Smith 2001, John Stone 2001, Christidis and Boles 1994 plus others) referred to in the PER are also not in the reference list Section 10.

These references will be incorporated into future documentation applicable to this proposal.

FIGURES

Figure 16 Landscape Units of Lot 2 is missing from the PER.

Other copies of the PER document have been checked and found to contain Figure 16. It is most likely that Figure 16 from the Submitter's PER document was omitted during collation. The figure would also have been included in the CD issued to DoE.

REFERENCES

Bamford M.J. and A.R. 2003. Southern Extension of Lot 2 Calinup Road Gelorup Fauna Assessment for Public Environmental Review. Perth, WA.

Environmental Protection Authority 2002. *A Strategy for the EPA to Identify Regionally Significant Natural Areas in its Consideration of the Greater Bunbury Region Scheme Portion of the Swan Coastal Plain.* Unpublished report September 2002.

Environmental Protection Authority 2003. Greater Bunbury Region Scheme – Report and Recommendations of the Environmental Protection Authority (Bulletin 1108). Environmental Protection Authority. Perth, Western Australia.

Gibson, N., Keighery, B.J., Keighery, G.J., Burbidge, A.H., and Lyons, M.N. 1994 *A Floristic Survey of the Southern Swan Coastal Plain.* Unpublished report for the Australian Heritage Commission, prepared by the Department of Conservation and Land Management and the Conservation Council of W.A. (Inc.).

Government of Western Australia 2000. *Bush Forever Vol. 2. Directory of Bush Forever Sites.* Department of Environmental Protection, Perth, Western Australia.

How, R.A., Dell, J. and Humphreys, W.F. 1987. The ground vertebrate fauna of coastal areas between Busselton and Albany, Western Australia. *Records Western Australian Museum* 13: 553-574.

Keighery, B.J. and Longman, V.M. (Editors) 2002. *Tuart (Eucalyptus gomphocephala) and Tuart Communities.* Perth Branch Wildflower Society of Western Australia (Inc.), Nedlands, Western Australia.

Storr, G.M. and Johnstone, R.E. 1988. Birds of the Swan Coastal Plain. *Records of the Western Australian Museum* Suppl. No. 28.

Submission 8 – Department of Industry and Resources (DoIR)**Public Environmental Review: APH Contractors.
Southern Extension of Sandpit - Lot 2 Calinup Road, Gelorup.**

Noted the advert for this quarry with interest in Monday's paper.

This site butts up to an area Iluka Resources holds in M70/1033 that contains their Stratham North Ti-mineral deposit. Mining is, as I understand it, not on Iluka's 10-year mining program as yet. However, the company is likely to propose mining in the future. The Ti deposit is overlain by a significant thickness of unmineralized sand, which is then covered by similar vegetation to that over the Pioneer proposal. If/when Iluka ever mines the Ti deposit, that would produce large quantities of sand that should be similar to the Pioneer sand. From a whole-of-Government approach, it is a pity that the overburden sand cannot be mined now for supply for building purposes, leaving that part of the dune without Ti minerals as unmined.

The PER recognises that the Gelorup area, including the western and eastern slopes in the vicinity of Lot 2, are identified for other land uses, of which sand extraction is one such interim land use, and a final land use of residential, as identified in several planning documents. Sequential developed as suggested by the DoIR (Submitter 8) is a practical approach to optimising resources prior to sterilising these resources once residential development occurs.

The PER promotes this sequential development approach for Lot 2.

Submission 9 –Shire of Capel

OUR REF: EC.6.4.8a
C5.2.N.76
CODE: I031120-008
ENQ: T Brockman

The Environmental Protection Authority
Westralia Square
141 St Georges Terrace
PERTH WA 6000

(Att: Tim Gentle)

Dear Sir

RE: PUBLIC ENVIRONMENTAL REVIEW – SOUTHERN EXTENSION OF LOT 2,
CALINUP ROAD, GELORUP – PIONEER CONSTRUCTION MATERIALS PTY LTD

The attached comments concerning the above review are referred for your information and consideration please.

Should you require any additional information or wish to discuss this matter further, please do not hesitate to contact Mr Ian Cocker, Manager Operational Services.

Yours faithfully

IAN COCKER
MANAGER OPERATIONAL SERVICES

Public Environmental Review – Lot 2 Calinup Road

Shire of Capel Submission

Item	PER Section	Description (sections in <i>italics</i> are quotations from the PER)	Issues for Resolution and Comment	MBS Comments
1.6.2; 4.4; 4.5; 6.3.4	Surface Water, Groundwater and Drainage	<i>“ ... the proposed sand extraction operations will have no impact on the drainage system or surface water bodies located east of Lot 2.”</i>	Further investigation required to determine actual water levels within wetlands as well as underlying soil strata present to ensure excavation directly to the west does not affect this system. A more intense piezometer sampling exercise would appear appropriate, particularly through the later wet months of the year leading up to November.	<ul style="list-style-type: none"> The separation distance between final pit floor level and high winter water levels will be in excess of two metres and will be more than 250 metres west of the nearest functioning wetland. The groundwater gradient is to the west. All rainwater falling within the extracted areas will drain into the permeable sands with no run-off occurring to the east. All rainwater and run-off will be contained within the extractive area. <p>Additional piezometers will be installed as extraction progresses south to monitor any changes in water levels. This will be described in the EMP.</p>
1.6.5; 7.1	Impacts on Visual Amenity In The Area	<i>“Lot 2 is not readily visible from the surrounding areas due to it's position in the landscape.”</i>	The current excavation on the slopes of Gelorup Hill is readily visible to the east of the Shire – especially from the Boyanup area. The PER process needs to determine the future of Gelorup Hill (final landform) and strict measures must to be implemented to ensure that rehabilitation on previously excavated areas is completed (to the agreed landform) as a matter of	<p>Gelorup Hill has been extensively cleared during the previous sand extraction operations. The proposal to rationalise the landform around Gelorup Hill and to extend extractive operations south of Gelorup Hill will not result in any significant further visual impacts as described in the Visual Assessment (section 7.1 of the PER).</p> <p>The proposed sand extraction and reinstatement of Gelorup Hill will provide the opportunity for APH Contractors to progressively rehabilitate the</p>

Item	PER Section	Description (sections in <i>italics</i> are quotations from the PER)	Issues for Resolution and Comment	MBS Comments
			<p>urgency prior to the commencement of further excavation.</p>	<p><i>landform with fresh topsoil and establish native vegetation which will eliminate the visual impact over time.</i></p> <p><i>The PER discusses the existing and potential future land uses of Gelorup Hill and surrounding areas and puts into context the current sand extraction occurring on Lot 2, as well as on Lot 679 west and adjacent to Gelorup Hill.</i></p> <p><i>The PER process does not allow for the determination of the future of Gelorup Hill other than that portion contained on Lot 2.</i></p> <p><i>The prominence of Gelorup Hill on Lot 2 will remain unchanged except for slopes of the eastern hillside increasing from existing batters of 1:6 to 1:7 to typical slopes of 1:4 which will then be returned to native vegetated slopes, which will be similar to existing naturally vegetated areas with slopes of 1:4 occurring elsewhere on Lot 2.</i></p> <p><i>In the event that Gelorup Hill and Lot 2 are subdivided and developed into residential in the future, the extractive proposal as described in the PER makes provision for a cut to fill earthworks balance so as to achieve a landform that is suitable for residential development with slopes of between 1:6 and 1:10. Refer to section 3.10 of the PER and Figure 9.</i></p>
3.2.1	Extractive	"Dependent on Geotechnical	The Shire of Capel Local Laws for	Clause 7.4 (a) and (b) of the Shire of Capel

Item	PER Section	Description (sections in <i>italics</i> are quotations from the PER)	Issues for Resolution and Comment	MBS Comments
	Industry By Laws and Requirements	<i>stability, drainage, vegetation type to be established and future land use. Slopes will have batters of 1:4 or less.</i>	Extractive Industries have no such clause relating to batters, and Council staff certainly don't advocate 1:4 batters as being sustainable. The previously excavated areas north of Calinup Road are a prime example of problem batter slopes and poor rehabilitation methods and this must not be duplicated to the south(see 3.10 below).	<p>Extractive Industries Local Law (21 February 2001) states:</p> <p><i>"Where the carrying on of an extractive industry on the site permanently ceases or on the expiration or cancellation of the licence applicable to the site, whichever first occurs, the licensee shall, as well as complying with the provisions of clause 7.3 –</i></p> <p>(a) <i>restore and reinstate the excavated site in accordance with the proposals approved by the local government or in such other manner as the local government may subsequently agree in writing with the licensee;</i></p> <p>(b) <i>ensure that any face permitted to remain upon the excavation site is left safe with all loose materials removed and where the excavation site is –</i></p> <p>(i) <i>sand, the sides are sloped to a batter of not more than 1:3 (vertical:horizontal); and</i></p> <p>(ii) <i>limestone or material other than sand, the sides are sloped to a batter which, in the opinion of the local government, would enable the site to be left in a stable condition."</i></p> <p><i>The proposed reinstatement and contouring of extracted sandy slopes to batters of 1:4 or less will provide a stable, free draining landform for</i></p>

Item	PER Section	Description (sections in <i>italics</i> are quotations from the PER)	Issues for Resolution and Comment	MBS Comments
6.6.4	Rehabilitation and Closure	<p><i>“Procedures for the progressive rehabilitation and closure of the southern sand pit will be contained in the Environmental Management Plan.”</i></p> <p>Some procedures have been listed under sections 6.6.4.1 to 6.6.4.4.</p>	<p>As can be seen from the northern extraction site, rehabilitation in this locality is difficult. No further extraction should be considered unless it can be clearly demonstrated by specific analysis and research that rehabilitation will not be problematic. A commitment to provide details at a later date is not acceptable. Agencies need to be definitively convinced that appropriate rehabilitation can be achieved.</p>	<p>vegetation to establish similar to existing naturally vegetated areas with slopes of 1:4 occurring elsewhere on Lot 2. In the event of future residential development, Lot 2 can be re-earthworked to create 1:6 to 1:10 battered slopes for development.</p> <p>The commitment is to provide rehabilitation procedures in an EMP prior to extraction beginning. It is anticipated that it will be based on criteria developed in conjunction with the relevant agencies.</p> <p>Rehabilitation of northern areas has limited or no topsoil. Topsoil management is a key rehabilitation technique proposed for progressive rehabilitation to the south and is a standard mining industry practice.</p> <p>The PER provides details of the rehabilitation approach methodology and general procedure.</p> <p>It is anticipated that the proposal will be approved subject to conditions. It is not beyond the EPA's scope to approve the proposal subject to a rehabilitation plan being developed and approved by the relevant agencies prior to extraction beginning.</p>
8	Environmental Management Plan	<p><i>“The Environmental Management Plan will be developed and implemented as soon as an extractive industry</i></p>	<p>Under the Shire's Local Laws a rehabilitation report is required to be submitted with the licence application not after the issue of the</p>	<p>As noted in 6.6.4 above there are procedures outlined for rehabilitation in sections 6.6.4.1 to 6.6.4.4. These provide a general outline of how the rehabilitation will be undertaken. An outline</p>

Item	PER Section	Description (sections in <i>italics</i> are quotations from the PER) <i>licence is issued.</i> "	Issues for Resolution and Comment	MBS Comments
3.10	Post-Mining Landform and Long-Term Landuse	<p><i>"At a meeting of 27 June 2001 the Shire of Capel Council, in giving consent for an interim Extractive Industries Licence, advised in a letter dated 6 July 2001: 'You are advised that support in principle is given for the Subdivision Guide Plan which incorporates the rationalization of Gelorup Hill, relocation of Cokelup Road, realignment of Calimup Road and provisional interim road layout for Lot 2; but that this is subject to the favourable approval of the long-term licence application by the Department of Environmental Protection.' The post-mining landform of the sandpit ... has been designed to conform to</i></p>	<p>licence. In this instance the Council would require the PER process to conclusively determine that the rehabilitation and return of the land to an acceptable native vegetation landform is feasible.</p> <p>Further detail should be required as part of the consideration of the proposal not after the determination.</p> <p>In it's meeting of March 1999 (copy of relevant Minutes attached) Council's clear position was that batters of 1:6 were seen as a minimum standard, and that 1:10 is desirable for roads and lots. In June 2001 Council also supported in principle the proposed Subdivision Guide Plan (Figure 9 of the PER) that reflected the above batters.</p> <p>It appears that Figure 7 of the PER (Final Contours of the sandpit) is considered by the applicant to be an interim outcome prior to mass earthworks to create the landform as depicted in Figure 9 of the PER (Subdivision Guide Plan). Council has however not supported the applicant's interim position as depicted in Figure 7 of the PER</p>	<p><i>of what will be provided in the EMP is described in section 8 of the PER. The details will then be provided once the proposal has been approved subject to any changes/ conditions such that these changes/conditions can be incorporated into the EMP.</i></p> <p><i>The Subdivision Guide Plan was included to meet the request of the Council to demonstrate that the proposed extraction will not limit subsequent land uses, including residential, in the future.</i></p> <p><i>It needs to be noted that subdivision is not part of this proposal. This proposal is for extraction only and demonstrates that with appropriate earthworks the Subdivision Guide Plan can be achieved if residential subdivision occurs in the future and it therefore demonstrates that the extractive proposal does not limit this future land use.</i></p> <p><i>The relocation of Cokelup Road is a desirable outcome not only for the extractive operations proposed on Lot 2 but also for future development occurring on the western side of Gelorup Hill and Cokelup Road. It is further endorsed, albeit in principle, by the Shire of Capel itself as relocation of the road will allow for rationalisation of the</i></p>

Item	PER Section	Description (sections in <i>italics</i> are quotations from the PER)	Issues for Resolution and Comment	MBS Comments
		<p><i>these town planning initiatives as developed in the Subdivision Guide Plan The Subdivision Guide Plan provides details of the potential re-landscaped landform of Lot 2 with finished slopes of 1:6 to 1:10."</i></p>	<p>(Final Contours of Sandpit). The Subdivision Guide Plan details what is considered to be a sustainable landform should extraction continue to the south. The PER process needs to ensure that this landform is the minimum standard acceptable and that any Extractive Industry Licence issued in the future, works towards creating this minimum standard. The relocation of Cokelup Road is pivotal to the creation of the final landform and needs to be implemented through other statutory approval processes prior to the continuation of extraction. The reliance on the relocation to achieve sufficient sand volumes to achieve acceptable finished grades after the completion of the extractive industry means that the impacts of the proposal to extract to a 1:4 grade, which is not acceptable, cannot be contained within the lot. Also the need for other approvals cannot be controlled under the Local Law and Town Planning Scheme approval processes for the extractive industry.</p>	<p><i>Gelorup Hill area for future residential subdivision taking into account the interim uses of sand extraction and possible future mineral sands mining.</i></p> <p><i>The interim land use of sand extraction on Lot 2 will provide stable landforms for vegetation to re-establish and return to its current Rural zoning land uses.</i></p> <p><i>Refer to item 3.2.1 above regarding creation of 1:4 slopes.</i></p> <p><i>In the event that residential subdivision occurs on Lot 2 and the adjoining Gelorup Hill areas, the Shire of Capel has indicated that the Subdivision Guide Plan will be supported. Therefore, the current extractive proposal is feasible and should be acceptable.</i></p> <p><i>Following extraction of sand from Lot 2 and in the event that residential subdivision on Lot 2 does not occur, it has been demonstrated that the post-extractive landform in the PER is suitable for its Rural zoning uses, which will not compromise the existing alignment of Cokelup Road.</i></p>

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5.4	Conclusions of the Public Consultation Programme	<i>“There is support from the local community and the Shire of Capel.”</i>	<p>Therefore whilst the concept of the end land use plan may be acceptable the extractive industry is highly speculative and not capable of being linked to an acceptable finished landform.</p> <p>The local community was appeased to a large extent with the sealing of Calinup Road. However operating methods and poor standard rehabilitation carried out by previous licensees still remains an issue.</p> <p>The Shire of Capel works with and tolerates extractive industries but does not ‘support’ them due to associated environmental issues, potential infrastructure damage (roads) and the amount of community backlash due to the generation of dust, noise and truck traffic.</p>	<p><i>The Environmental Management Plan will establish procedures for the operation of the site and to minimise the impacts to the community. The Shire of Capel will have the opportunity to contribute to finalising these procedures in the EMP to ensure that all environmental, infrastructure, traffic and air quality issues are managed in an appropriate manner.</i></p>
7.2	Noise	<i>(7.2.6 Environmental Outcome): “Noise is not considered to be a problem ...”</i>	<p>Mr James Smith’s letter (Appendix 7 of the PER – Public Consultation Details) clearly states that a house was being built (now completed) a mere 350m from the eastern boundary of Lot 2. Noise therefore will be an issue and suitable buffers need to be taken into consideration</p>	<p><i>Noise associated with the sand extraction operation is minimal as proven from the existing operation within the northern portion of Lot 2, which has co-existed for several years with residential properties along the northern boundary. There is sufficient operational buffer proposed within the PER whereby the nearest operations from the southern extractive area of</i></p>

Item	PER Section	Description (sections in <i>italics</i> are quotations from the PER)	Issues for Resolution and Comment	MBS Comments
			<p>with any further extraction. It should also be noted that the adjacent lot 167 is presently the subject of a rezoning proposal to create additional special rural lots.</p>	<p><i>Lot 2 as addressed in this PER is:</i></p> <ul style="list-style-type: none"> • <i>Between 450 and 600 metres from Mr Smith's dwelling (Lot 100) due to the setbacks retained along the eastern boundary of Lot 2 in the vicinity of Lot 100.</i> • <i>The proposed sand extraction operations will have a minimum separation distance of 200 metres south of the southernmost limit of Lot 167. This separation distance will increase at approximately 100 metres per annum as operations advance south such that a separation distance in excess of 500 metres will be achieved within 4 years of operation.</i> <p><i>It needs to be noted that the subdivision proposal on Lot 167 should take into account the necessary buffers which are suitable for such residential development occurring in proximity to an established sand extractive industry on Lot 2.</i></p>
7.3	Particulates and Dust	<i>(7.3.6 Environmental Outcome): "The proposed southern sandpit extension will not generate more dust than existing sandpit operations."</i>	<p>To date sand movement resulting from prevailing winds has caused angst amongst adjacent landowners. Concern has been raised by Mr Dillon and Smith to the east of the extractive industry.</p>	<p><i>Past issues of windblown sand along the north-eastern property boundary of Lot 2 adjacent to Lot 167 were related to the lack of topsoiling and vegetation cover as well as progressive rehabilitation not having occurred.</i></p> <p><i>More recent mulching of exposed surfaces has minimised dust generation. Sand stabilisation will continue until vegetation becomes established. The proposal will be developed on an extraction block basis with progressive rehabilitation which</i></p>

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7.5	Road Transportation/Traffic	<i>(7.5.3 Impact of Proposed Extension on Transportation and Traffic): "There is no potential for increased road traffic movements or deterioration in road quality because the traffic rate from the sandpit will remain unchanged."</i>	Repetitive loaded truck axles will cause accelerated deterioration to a pavement over time. Any extended use of roads for extraction purposes will require contributions from the licensee towards maintenance/preservation.	will minimise the area of disturbance at any one time. The progressive topsoiling and re-establishment of vegetation together with the interim application of mulches, where required, will, together with the extensively wooded surrounding areas, ensure that windblown sand will not be an issue in the southern portion of Lot 2. Calinup Road was sealed by the previous owner of Lot 2 and the appropriate rates for road maintenance as required for extraction industry operations will be paid by the proponent.
	Report Distribution Record		It is noted that the <u>Public Environmental Review</u> document was not sent to adjacent landowners who will be most affected by this proposal. These landowners <u>must</u> be consulted regarding the PER process. It is also noted that the report has not been referred to the Western Australian Planning Commission. It would appear appropriate that comment be obtained from this agency given the identification of the land in Regional Planning documents	The DoE provided comment on the interested parties that should be consulted. The WAPC was not one of them. Extensive consultation was undertaken at which all the adjacent landowners had an opportunity to comment on the draft PER and several did take this opportunity. The PER was advertised twice and the PER was sent to Mrs Tanya Farnsworth as the Gelorup Residents Association representative and the Dillons, owners of Lot 167. The owners of Lot

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			and policies not mentioned and the incorrect information stated in respect to this matter.	677, Messrs D. Payne and R. Shield, were also advised in writing of the availability of the PER.

Submission 10 – Department of Conservation and Land Management (CALM)**Department of Conservation
and Land Management***Conserving the
nature of WA***Your ref:** 363/03**Our ref:** 2001F001635V04**Enquires:** Peter Hanly**Phone:** (08) 9725 5900**Fax:** (08) 9725 4351**Email:** peterha@calm.wa.gov.au

Chairman
Environmental Protection Authority
Westralia Square
141 St Georges Terrace
PERTH WA 6000

Attention: Tim Gentle**SOUTHERN EXTENSION OF LOT 2, CALINUP RD SANDPIT, GELORUP,
SHIRE OF CAPEL (ASSESSMENT NO. 1301): PUBLIC ENVIRONMENTAL
REVIEW (PER)**

I refer to Mr Rod Sippe's letter of 8 December 2002, requesting comment on the above Public Environmental Review (PER). I apologise for the delayed response.

The Department of Conservation and Land Management (CALM) has reviewed the PER and provides the following comments for your consideration in assessing this proposal.

Vegetation

The vegetation on the property is largely well-established regrowth which appears to contain the full suite of indigenous species, providing a good representation of this *Karrakatta Central & South* vegetation type, as described and mapped by Havel, Heddle and Loneragan

(1980). Some mature jarrah and marri trees occur near the western boundary of the property. The vegetation on Lot 2 is part of a larger remnant of good quality vegetation extending over a number of freehold properties and an uncleared road reserve on this Karrakatta landform and soil type. The vegetation on Lot 2, along with adjoining properties, is a significant contributor to a remnant east west ecological linkage on the Swan Coastal Plain. The linkage extends from the coast to the Preston River and beyond, and is referred to as the Dalyellup, Gelorup and Crooked Brook east west ecological linkage, Greater Bunbury Region Ecological Linkages in Appendix 4, EPA Bulletin 1108, September 2003 (EPA 2003). No Declared Rare Flora was found during vegetation surveys conducted by the proponent.

The PER document in section 6.4.2 refers to 16% of the *Karrakatta Central and South* vegetation type being in reserves. This is based on the area covered by the draft Greater Bunbury Region Scheme (WAPC, 2000) and does not cover the greater original extent of this vegetation type on the Swan Coastal Plain. In its broader original extent, the proportion of this vegetation type in conservation reserves is believed to be substantially less than 10 %.

The information on vegetation percentages was obtained from the EPA document "A Strategy for the EPA to Identify Regionally Significant Natural Areas in Consideration of the Greater Bunbury Region Scheme Portion of the Swan Coastal Plain."

Fauna Habitat

The vegetation provides good quality fauna habitat. The report *Southern Extension of Lot 2 Calinup Road, Gelorup- Fauna Assessment for Public Environmental Review May 2003 prepared by MJ & AR Bamford Consulting Ecologists* is included as Appendix 5 of the Public Environmental Review. The report by Bamford Consulting Ecologists concludes that the Calinup Rd site.

"...is expected to support a rich vertebrate fauna including a number of species of conservation significance. The proposed sandpit expansion will adversely impact upon the fauna, including these significant species, through habitat loss, but the impact may extend beyond the boundaries of the study area for some species. This is because for some birds and mammals, the study area is part of a much larger area of native vegetation and lies between two areas that are being considered for reservation. The sandpit expansion may reduce the linkage between these large areas and therefore could compromise local populations of some significant species."

The Report suggests that the species most likely to be present that would be affected would include:

- Conservation Significance level 1- The Chuditch (Schedule 1 (Vulnerable) under the *Wildlife Conservation Act 1950* and vulnerable under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)).
- Conservation Significance level 2 -The Brush-tailed Phascogale, Quenda and Brush Wallaby (listed as Priority 3, 4 and 4 respectively on the Department of Conservation and Land Management's threatened species list).
- Conservation Significance level 3 -The Western Yellow Robin, Golden Whistler, Gilbert's Dunnart, Western Pigmy Possum and Honey Possum" (Species with widespread decline in abundance in the South West).

Bamford also notes a number of other species of conservation significance that may occur on or visit the site. It is possible that the western ringtail possum (Schedule 1 (Vulnerable) of the Wildlife Conservation Act and vulnerable under the EPBC Act) could occur on the property.

The extractive proposal retains vegetation within the southern and eastern portions of Lot 2 as an ecological link. The extracted areas will be reinstated and rehabilitated following sand extraction and form a part of a green belt or subsequently become residential in the future.

If species of significance require translocation prior to clearing at Lot 2, the proponent will look at implementing such plans.

Groundwater

The PER does not address whether there may be modification to groundwater values and water storage capacity, and the significance of this area's contribution to the hydrology and habitat maintenance of the Cokelup swamp to the immediate west and wetlands to the east of the dune system if the quarry proceeds.

Cokelup swamp is located west of Gelorup Hill, which forms a topographic divide between the swamp and Lot 2, which is located on the eastern hillside of Gelorup Hill. The extractive area is on Lot 2, approximately 750 metres east of Cokelup swamp and will not detrimentally impact on the hydrogeological function and the existing attributes of the wetland. The nearest functioning wetland east of Lot 2 is about 250 metres from the extractive area.

The separation distance between final pit floor level and high winter water levels will be in excess of two metres. The groundwater gradient is to the west. All rainwater falling within the extracted areas will drain into the permeable sands with no run-off occurring to the east. All rainwater and run-off will be contained within the extractive area.

The presence of free draining sands with effective filtering process will ensure that good quality water recharges the areas and maintains similar hydrogeological functions.

Additional piezometers will be installed as extraction progresses south to monitor any changes in water levels. This will be described in the EMP.

Land Use Plans

The proposed quarry extension lies within the extensive area of the North Boyanup Structure Plan, which is being prepared by the WA Planning Commission. Ideally this plan should be produced before a decision is made on the quarry so that the values of the site can be better assessed in context with the surrounding environment.

Lot 2 is in an area identified in the Bunbury Wellington Region Plan (WA Planning Commission, 1995) as a Special Development Area within the Beridup Planning Unit. Planning policies and guidelines for this Planning Unit are:

1. Assess future development potential within the Special Development Area and ensure that any interim development or land use does not prejudice that identified future land use.
2. Landscape protection, conservation and tree planting areas should be promoted in accordance with the Shire's local rural strategy.

3. Wetland protection in accordance with the EPA's EPP for Swan Coastal Plain Lakes.
4. Groundwater aquifers should be protected.

The PER recognises the future residential development proposed for the region which includes Lot 2 and addresses the planning policies and guidelines for interim sand extraction development and future landforms for residential development.

Recommendations

The Department provides the following recommendations, should the proposal be approved.

Vegetation Clearing

- The extent of natural vegetation clearing should be minimised as demonstrated in an Environmental Management Plan approved by DoE and this Department.

An EMP will be developed by the proponent in consultation with the relevant authorities and the DoE. Eighteen hectares will be retained by the proposal and vegetation retained mainly in the eastern and southern portions of Lot 2, which adjoin naturally vegetated areas to the south and south-west.

- Prescriptions for retaining present vegetation as a basis for ecological corridor connections should be included with any approval. The corridor connections would create good linkages to reserves and wetlands to the west and to substantial remnants and wetlands to the east which form part of a naturally vegetated corridor through to the Preston River. Further, it should not be presumed that the Cokelup Road reserve along the western boundary will be incorporated into freehold land.

This is noted in the PER and addressed in previous comments to the Shire of Capel response (Submitter 9).

- Setbacks for clearing should consolidate, expand and buffer the natural vegetation retained on the road reserve along the ridge. The naturally vegetated Cokelup road reserve could be retained in future primarily for its conservation value with alternative access incorporated into any future urban subdivision design.

The extractive proposal and future residential development potential as described in the PER supports this CALM recommendation by consolidating the vegetation in the eastern and southern portions of Lot 2. Cokelup Road reserve is partially cleared to provide access to Lots 676 and 677, but has not been cleared south of Lot 2. There will be a narrow, 20-metre wide vegetated setback along the ridge adjacent to Cokelup Road in the vicinity of Lot 677 and the northern portion of Lot 676.

- Clearing design should maximise the buffer adjoining the uncleared road reserve, which is close to the ridge top. A wider buffer (eg width of 80 to 100 meters) would incorporate more of the mature trees, enhance the viability of the reserved vegetation, and help to protect the natural skyline landscape of the ridge along the western boundary of the property.

The proposal to extract sand requires access to sand as high up as the eastern facing hillslopes as possible, to maximise sand resources and provide sufficient fill to reinstate and rehabilitate the extracted landform.

The skyline landscape will be preserved, as the western limit of sand extraction is between five and 10 metres below the ridge top within the southern portion of Lot 2. The proposed 20-metre setback as well as the partially cleared Cokelup Road reserve will provide a 40-metre wide buffer of mature trees in the event that residential development does not occur in the future.

- Older habitat trees and areas abutting wetlands are given priority when identifying areas to be retained.

There is a significant area retained in setbacks along the southern and eastern portions of Lots 2 which are nearest to the low-lying wetlands.

- The proponent should be required to fund the preparation and implementation of a threatened fauna management plan that is acceptable to this Department.

The proponent would be prepared to fund relocation of any threatened fauna from the property prior to clearing and extraction.

Rehabilitation

- A rehabilitation plan should be developed with the objective of ensuring good quality re-establishment of natural habitat which will enhance the retained corridors.

Given that the area may go to residential, rehabilitation of the site will be undertaken and consideration to more specific rehabilitation and management of retained area will also form part of the rehabilitation plan.

- Any future urban development on the disturbed site should also provide for the retention of a substantial east-west natural vegetation corridor (suggested to be of the order of 200 to 300 metres width of which some may be contributed to by neighbouring properties).

This is not part of this proposal and the proponent does not own adjoining land so cannot commit to retain land on adjacent properties. However, an increase in the southern boundary setback to 100 metres is considered reasonable. If a similar setback was retained on the property to the south a total of 200 metres of vegetation would be retained creating a suitable corridor east-west.

- Gelorup Hill should have a substantially increased buffer width to minimise the risks of erosion and deterioration of the natural vegetation cover on the crown of the Hill. (When slopes of the quarry are to be recontoured, machinery must be prevented from possible incursions into the natural vegetation corridors. This is likely to necessitate an additional retained strip at the top of steep slopes for machine work or careful planning of how the pit will be developed to allow for later recontouring.). An increased buffer around Gelorup Hill could have a beneficial effect of conserving additional areas containing the plant *Podocarpus drouynianus* which is near the northern limit of its natural range. These conservation zones should be fenced.

The proposed setback is sufficient to avoid any adverse impacts to the vegetation on the crest of Gelorup Hill. The proposed finished slopes following sand extraction will allow earthworking equipment to traverse the reinstated hillside without having to obtain access via the setback.

Measures for earthworking of reinstated slopes and the conservation of Podocarpus drouynianus will be included in the EMP.

- The development of the proposed sand quarry should be subject to a periodic licence renewal requirement that includes the need for acceptable performance in rehabilitating the site consistent with a rehabilitation plan that also recognises the proposed future uses of the land.

Agreed.

- Subject to advice from the Department of Environment, potential impacts on groundwater and adjoining wetland habitats should be monitored.

The extractive proposal meets all the requirements of the WRC/DOE guidelines for the establishment of extractive industries [refer to comments to Item 1.6.2 of Shire of Capel response (Submitter 9)].

Additional piezometers will be installed as sand extraction progresses south to monitor any changes in groundwater levels.

- Dependence upon topsoil alone to provide propagules for the full range of flora species is inadequate. The full range of rehabilitation methodologies must be adopted.

This is acknowledged in the PER and will be incorporated into the rehabilitation plan.

- To give effect to these recommendations a comprehensive rehabilitation plan needs to be prepared which provides details of proposed long term use and rehabilitation objectives including:
 - an indication of areas to be retained for conservation purposes and the methods used to ensure re establishment of the full suite of native vegetation species and provision of fauna habitat in these areas;
 - weed control;
 - timeframes;
 - success criteria; and
 - rehabilitation monitoring and remediation techniques.

The proponent has committed to develop and implement a rehabilitation plan.

Future Land Uses

In Figure 9, the proponents have indicated a possible future special residential / residential development design. Through this it is also proposed that a possible buffer of public open space with natural vegetation to be retained around the wetlands along the eastern boundary (which is supported by the Department). However, this plan would also involve the further

destruction of vegetation otherwise retained during the quarrying operation as presented in Figure 7.

This is an indication on how the extractive industry can be developed and not limit further development of the site. It does not form part of the current proposal apart from to demonstrate that the PER extractive proposal has considered the sequential use of the site. If and when residential development of the site is proposed in the future it will be subject to another approval and these issues will be addressed at that time.

Any decision that allows an extension of the quarry will be significant in determining the future land use for that portion where quarrying is permitted, plus any edge effect or off-site impacts. With respect to this, it is recommended that:

- if quarrying is permitted, all of the vegetation shown as retained in Figure 7 should be protected from future development;
- the buffers and the east-west corridor should be substantially increased in area and these should be protected from future development; and
- the extent of a future urban subdivision should be smaller than that proposed in Figure 9 to limit the impact on natural vegetation to nothing more than the extent of any approved quarry.

The future special residential/residential development of the Gelorup Hill area, which includes Lot 2, will need to be part of a broader town planning initiative to consolidate development of the area. Clearing requirements for future residential development on Lot 2 will need to be assessed once such planning is completed and subject to another approval process.

Summary

- The Department of Conservation and Land Management is opposed to any clearing of the good quality vegetation on Lot 2 which also provides valuable fauna habitat and makes a significant contribution to the Dalyellup, Gelorup, Crooked Brook east west ecological linkage (EPA 2003 *op. cit.*).
- If quarrying is permitted, the suggested aim should be to minimise impacts on the natural vegetation, habitat and ecological linkage values, with due consideration being given to anticipated future land use.

Thank you for the opportunity to comment on this proposal.

Yours sincerely

Keiran McNamara
EXECUTIVE DIRECTOR
12 February 2004